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Review Article

Challenges and Opportunities in Recruitment of Depressed Mothers: Lessons Learned from Three Exemplar Studies

Panagiota D. Tryphonopoulos* and Nicole Letourneau

Department of Nursing, University of Calgary, Canada

Abstract

The negative impact of untreated postpartum depression on the health and well being of women and their families has been well documented. This underscores the need for developing and testing effective programs and interventions based on the best possible evidence. However, research involving women who may feel stigma over their depression, presents a wide variety of challenges, not the least of which is inadequate recruitment. Understanding potential barriers for recruitment and adopting methods to mitigate these challenges is crucial for planning efficient recruitment strategies. This paper will discuss some of the challenges associated with recruiting depressed mothers into intervention-based research and describe promising recruitment strategies uncovered via a realist review of literature. We will also discuss the lessons learned during the recruitment activities of three exemplar studies of women with postpartum depression.

***Corresponding author**

Panagiota D. Tryphonopoulos, Faculty of Nursing, University of Calgary, Alberta, Canada, T2N 1N4, Email: ptryphon@ucalgary.ca

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INTRODUCTION

Postpartum mood disorders, such as depression, represent the most frequent form of maternal morbidity following delivery [1,2]. Recruiting depressed mothers for intervention-based research can be a perplexing endeavour. Insufficient sample sizes limit the generalizability of results and undermine even the most rigorously designed research. Yet, the populations which may benefit the most from investigation are often the most difficult to solicit participation from and a major factor contributing to why some groups are under-represented in mental health research.

Although studies exploring women's experiences with Postpartum Depression (PPD) have been conducted [3], to date research investigating their support needs, help-seeking barriers and preferred interventions is limited. This represents a knowledge deficit with grim implications in light of inadequate screening and treatment rates [3]. While our most vulnerable citizens are in greatest need of support, they are often the most difficult to recruit. To the best of our knowledge, studies comparing and exploring recruitment targeting depressed women are missing entirely. This omission is troubling since depressed mothers are needed to take part in research to ensure that subsequent interventions are based on the best possible evidence. Accordingly, the evidence base necessary for optimal care may be lacking.

Recruitment challenges are often exacerbated by intersecting barriers to participation such as stigma, under-diagnosis of PPD, participant burden, and lack of participant resources. Perhaps due to the debilitating effects of depression and aforementioned barriers, depressed adults are especially likely to refuse invitations to participate in research, thus posing a great risk to overlooking or underestimating important treatment-relevant correlates of depression [4]. Symptom severity and the deleterious consequences for children's development mean that research on early identification, intervention and treatment of PPD is paramount.

The purpose of the this paper is to conduct a realist literature review that explores the limited body of knowledge related to recruitment of depressed women (and individuals from other vulnerable populations) for intervention-based research while also presenting investigators with relevant methodological reading for maximizing the efficacy of their recruitment practices. Accordingly, this paper will discuss some of the challenges associated with recruiting depressed mothers and describe an array of promising recruitment strategies uncovered via a realist approach. Using examples from three exemplar studies conducted by our CHILD (Child Health Intervention and Longitudinal Development) Studies Program based out of the University of Calgary and the University of New Brunswick, we will detail lessons learned during the recruitment phases of

these projects. In this discussion, we shall address each of the recruitment barriers highlighted during the realist literature review and describe mitigating strategies used to overcome the challenges we have encountered.

BACKGROUND

Postpartum Depression

Postpartum depression (PPD) affects 19.2% of mothers during the first three months postpartum and 7.1% will experience major depressive episodes [5]. PPD is characterized by debilitating symptoms such as dysphoria, emotional lability, insomnia, feelings of worthlessness and hopelessness, anxiety, guilt, anhedonia, and, in extreme cases, suicidal ideation [1,6]. Depressive symptoms are often exacerbated by low self-esteem, feelings of loneliness, inability to cope, and perceived maternal incompetence [1]. PPD's incidence rate is greatest within 12 weeks of delivery; however, onset may occur anytime within the infant's first year. Duration is contingent upon the severity of symptoms and the time and onset of treatment [1].

Maternal and infant mortality are rare but real consequences of PPD. Some of the most troubling consequences of PPD are related to the compromised maternal-infant interactions and the resultant risk for poor childhood developmental outcomes [7]. Poor quality interactions resulting from PPD increases children's risk for developmental challenges [6,7]. Additionally, 24% to 50% of men whose partners have PPD may also experience depression [8,9].The effect of maternal PPD on marital dysfunction is well documented [10,11] and predicts subsequent maternal depressive relapse [12]. Not surprisingly, children with two depressed parents are at significantly greater risk for poor developmental outcomes than those with just one affected parent [13].

Treatment of PPD

PPD is often underreported and under-diagnosed despite the frequent health care professional interactions that are typical of the postpartum period. Up to 50% of mothers with PPD fail to access support [3]. Studies show that mothers themselves are the greatest barriers in accessing support [1,3].Women may feel embarrassment or denial in relation to disclosing their depressive symptoms. The need to be the "perfect" mother, stigma associated with mental illness or the misconception that their child will be taken away if they are deemed unfit are also barriers [1,3]. This is especially unfortunate given the efficacy of PPD treatments (e.g., antidepressants, nondirective counseling, cognitive behavioural therapy, psychotherapy, and support groups) [1].

METHODS

A realist review was utilized to purposively sample academic literature related to barriers and facilitators associated with recruiting depressed/vulnerable mothers into intervention-based research and to identify strategies that may help extenuate these challenges. The realist approach does not adhere to the conventional systematic review formula: rather, it is an inherently pluralistic, flexible and iterative method of inquiry embracing both experimental studies as well as those which are less 'methodologically rigorous' (e.g., correlational, quasi-experimental, prospective, retrospective, and qualitative). Pawson and colleagues have noted, the realist review "seeks not to judge but to explain, and is driven by the question 'What works for whom in what circumstances and in what respects?' While traditional empirical reviews may focus on measuring and reporting program effectiveness, rather the focus of realist reviews is on exploration (i.e., what the research describes) rather than appraisal (i.e., critical evaluation of study quality). Thus, realist reviews are intended to provide a more detailed and practical understanding of complex social interventions and, therefore, a more effective application of learning from previous research [14].

The review consisted of a search of several bibliographic databases (CINAHL, ERIC, EMBASE, MEDLINE, PsychINFO, and Scopus) and hand searching of journals and bibliographies of retrieved papers. The following terms were used in the search strategy: (women OR female OR mother* OR maternal) AND (postpartum depression) AND (recruitment barriers OR recruitment challenges) AND (experimental research OR exploratory research OR clinical research). The initial search identified 166 publications, 57 of which were incorporated into this paper. As typical of realist methods, studies were included based on relevance to the topics of interest (e.g., challenges associated with recruiting depressed mothers, and promising recruitment strategies) rather than adherence to a set of systematic inclusion/exclusion parameters. No publication language or dates of publication limits were set during database searches. The search is current to October 2014.

Realist approaches depart from the typical data extraction process used in conventional reviews. Examining, categorizing, and annotating publications does not involve the use of a standardized set of criteria. Instead, realist reviews appropriate a bespoke approach toward gathering information and quantifying the relative contribution of each source [14]. This strategy provides researchers with the advantageous opportunity to "dig for nuggets" of explanatory value within publications which may be otherwise regarded as methodologically flawed . Information gathering for this review followed a simple and heuristic procedure, which consisted of reading, annotating, and extracting relevant details from each publication.

Exemplar Studies

Three exemplar studies, the *Mothers Offering Mentorship and Support (MOMS) Study* [16,17], *Lien MOMS Link* (Letourneau, Secco et al., in review), *Professional Interaction Guidance to Improve Maternal-Infant Interaction Quality of Depressed Mothers* (Tryphonopoulos, Letourneau et al., in review) will illustrate lessons learned during recruitment of depressed mothers in Eastern and Western Canada.

Exemplar 1: Mothers Offering Mentorship and Support (*MOMS*) Study

The *MOMS Study*, a multi-site randomized controlled trial (RCT), tested the effectiveness of home-based peer support that included maternal–infant interaction teaching for mothers with symptoms of postpartum depression and their infants. Mothers with postpartum depression were randomly assigned to control (n = 33) or intervention groups (n = 27). Intervention

group mothers received 12 weeks of home-based peer support that included maternal–infant interaction teaching; peers were mothers who had recovered from postpartum depression and were trained to provide support. Women were eligible to participate in the trial if they met the following inclusion criteria: (i) had an Edinburgh Postnatal Depression Scale (EPDS) (18) score greater than 12; and (ii) were caring for an infant less than 9 months of age; (iii) had a singleton birth; (iv) the infant did not have a significant health issue; (v) mother spoke and understood English; and (vi) mother lived within driving distance of the research cities in two Canadian provinces (Alberta and New Brunswick). Participants were recruited between September 2005 and August 2008 through a variety of methods, including advertisements in print, on radio, television, and online media as well as health professional referrals (e.g., public health nurses, physicians, psychologists, and social workers).

Exemplar 2: Lien MOMS Link Study

The *Lien MOMS Link,* a quasi-experimental study that evaluated the effectiveness of a bilingual (French, English) telephone peer support program, using community and integrated knowledge transfer approaches. Potential participants were identified via partnership with a telephone support service comprised of a the New Brunswick Tele-Care system, a free, Registered Nurse staffed, confidential service which provides health information, advice, and referral to the most appropriate level of care and available to over 700,000 citizens. Eligible mothers who accessed the Tele-care system service then self-selected for one of two groups: 1) traditional support (i.e., referrals to physician and mental health) or; 2) traditional plus peer support. Women were eligible to participate based on the following inclusion criteria: (i) living within the study region; (ii) between the ages of 19 and 45; (iii) primary caregiver of a child under two years of age; and (iv) having mild to moderate depression (mothers with symptoms of severe depression were connected with more appropriate support services). A total of 64 mothers were recruited between 2010 and 2014.

Exemplar 3: Professional Interaction Guidance to Improve Maternal-Infant Interaction Quality of Depressed Mothers (Pilot Study)

The *Interaction Guidance Study* explored the relationships between PPD, maternal-infant interaction quality and cortisol levels and tested the efficacy of a video-feedback interaction guidance intervention designed to improve the relationships of these dyads and delivered by trained Registered Nurse. The primary hypothesis of this study predicted that an interaction guidance intervention would improve maternal-infant interaction quality. Secondary hypotheses predicted that the intervention would decrease maternal depressive symptoms and lower cortisol concentrations in mothers and infants. Mothers were eligible to participate in the trial based on the following criteria: 1) ability to read write, and speak English; 2) ability to provide voluntary, informed consent; 3) EPDS cutoff score of 12 or more; and 4) aged at least 18 years. Mothers with postpartum depression were randomly assigned to control (n = 6) or intervention groups (n = 6). Intervention group mothers received 3 video feedback sessions that included maternal–infant interaction teaching. Data were collected from all mothers at baseline, as well as 3, 6 and 10 weeks' post-randomization. A total of 12 mothers were recruited between November 2012 and April 2014 through partnerships with three clinics specializing in women's mental health in Calgary, Alberta.

Barriers to Participation in PPD Research and Mitigating Strategies

Women's decisions on whether or not to participate in research are not made arbitrarily but are likely to be based on careful and rational consideration of a number of factors (e.g., perceived value of the research, time commitment perception of researchers [19]. Thus, understanding the relevant issues which factor into women's decisions is crucial for planning and implementing a recruitment strategy. Barriers and mitigating factors can be broadly classified as participant-related, research-related, or institutional/organizational. Table 1 provides a summary of these barriers and associated mitigating strategies

Participant-Related Barriers to Recruitment

Personal Beliefs and Perceived Value of the Research: A range of beliefs and characteristics influence women's decisions on research participation. Self-motivation is the most persuasive predictor of participation [20]. Other motives include altruism, giving back to the health care community [18,20], and personal relevance [21,22]. Wariness, shame, fears, influence of family members and language and literacy barriers are often cited as impediments to participation [23-25]. Individuals envisioning themselves volunteering for a useful or noble purpose are much more likely to participate [20]. Investigators must emphasize the value of their research and its relevance for both the participant and the advancement of public health. Posters, brochures, or information letters, can be effective for advertising and highlighting the benefits and value of participation.

For the *MOMS Study* and the *MOMS Link Study,* recruitment materials declared that lack of support for families with PPD has negative consequences for both moms and babies. Recruitment materials for the *Interaction Guidance Study* noted that PPD alters how mothers understand their babies cues and that the study tested a program for promoting sensitive mother-infant interactions. Other approaches for demonstrating the value of research include presentations to groups of potential participants, informal talks at community gatherings, and broadcast media coverage of research. Press releases picked up by print, radio and television media were used to generate interest for *MOMS Study* and the *MOMS Link Study.* The study's lead investigator was interviewed by the media numerous times, including a television, radio and newspaper coverage. Media coverage advertises the study, helps to enhance the perceived value of the research and promotes the public profile of the researchers.

Perception of Risks and Benefits: Well-designed research must minimize participant burden/risk and maximize potential benefits. Benefits may be intrinsic (e.g., perceived value) or inherent (e.g., access to supplementary care, talking about one's lived experience, or a sense of accomplishment for contributing to something that will benefit others) [24,25]. Often, external benefits, payments or inducements are offered. External benefits may include tangible gifts (i.e., books, gift cards),

Table 1: Barriers and Facilitators for Research Participation.

Barriers	Mitigating Strategies
Participant-Related	
Balancing Risks and Benefits	• Highlight intrinsic and inherent benefits • Facilitate access to resources and social supports • Ensure that there are no risks to child • Develop protocols to facilitate immediate support to highly distressed participants
Perceived Value	• Increase public profile of the research and investigators • Use media and recruitment campaigns to highlight the value of the research
Perceived Stigma	• Use recruitment materials to normalize PPD • Media campaigns to increase public awareness of PPD
Cultural Considerations	• Develop culturally appropriate recruitment strategies • Awareness of common values of particular cultures • Bilingual and multicultural research staff to make potential participants feel comfortable
Research-Related	
Perception of Researchers	• Foster empathetic relationships with potential participants • Consistent and responsive communication • Maintain accountability and keep promises
Explaining Informed Consent	• Standardized protocols for facilitating consent process • Explain necessity of randomization • Highlight privacy and confidentiality issues
Time	• Clear expectations regarding time commitments • Flexibility in scheduling appointments according to the convenience of participants
Research Location	• Arrange transportation or cover travel expenses • Home visits or telephone-based if compatible with research design
Communication	• Use multiple routes of communication (i.e., face-to-face, telephone, text, email) • Repeated contact of participants as needed
Institutional and Organizational	
Gatekeepers	• Develop trusting and mutually beneficial relationships • Ask gatekeepers what they require to facilitate identification of potential participants • Provide gatekeepers with relevant information that reflects their needs for efficiency and clarity • Reassure gatekeepers regarding ethical issues such as privacy and confidentiality, risk or burden, and the fairness of a randomized control trial design • Maintain channels of communication and encourage gatekeepers to voice questions and concerns
Organizational Issues	• Involve community leaders and service agencies early on in the research process and in the planning of recruitment strategies • Learn about organizational goals, clientele catered to and services offered to prior to planning of recruitment strategies • Employ Community Advisory Committees to develop relationships with community partners and foster community engagement • Draw upon community partner's specialized expertise and implement suggestions made by community partners • Maintain regular communication with partners for study updates and troubleshooting concerns

referral to supplementary supports, or financial compensation [26]. Consensus on the ethical implications of inducements—particularly with vulnerable populations—remains in conclusive [27]. A prevailing concern regarding payment is that this may coerce or unduly influence individuals to enroll in research, thus compromising the voluntariness of consent [28]. Another potential issue related to payment is the risk of enrolling participants who do not care about or support the goals of the study [29,30]. Nevertheless, researchers must follow institutional guidelines and funding policies in order to ensure that external benefits are offered in manner that is free of undue coercion and is consistent with ethical guidelines [31].

An honorarium was offered in each of the exemplar studies as a token of gratitude and to assuage any costs associated with travelling, childcare or other inconveniences. Access to a peer-mentor was an inherent benefit to participation in the *MOMS Study* as well as the *Lien MOMS Link Study* (where telephone peer support was provided). Peer volunteers were trained to provide informational (e.g., conveying information about postpartum depression), emotional (e.g., listening), affirmational (e.g., support aimed at promoting self-esteem and self-confidence), and practical (e.g., child care) support. In the *MOMS Study*, peer volunteers were trained to teach mothers specific information about optimal maternal–infant interactions. Participants in the *Interaction Guidance* study also received coaching on optimal maternal–infant interaction. An important benefit, highlighted in the recruitment materials, was the assessment of the quality of maternal-infant interaction. During home visits, mothers were brought coffee, tea and pastries as well as cosmetics and beauty product samples obtained via donations from pharmacies and department stores. Mothers also received a box containing toys, books and resources on the latest child development research translated into useful, everyday parenting ideas. In addition,

mothers who took part in all three of the exemplar studies were offered referral to relevant supports and services. All of these additional benefits were discussed with potential participants as part of our recruitment efforts.

Risk assessment is a fundamental component of contemplating research enrollment [21]. Potential risks or burdens should be made explicit during initial discussions of the research and while obtaining consent. Since the exemplar studies addressed some aspect of postpartum depression the possibility of distress associated with discussing depressive symptomatology was cited as a potential risk. We developed specific protocols outlining what should be done in this event, such as stopping the interview, ensuring participant safety and arranging for relevant resources. Participants were notified of these safeguards prior to obtaining consent. Perception of risk may be further complicated when young children are also part of the research, since any risk to the child overshadows the benefits/risks to the mother [21].Caution must be taken to address questions and assuage any concerns that mothers may have related to their child's involvement. For example, the collection of saliva samples from infants was cited as a potential concern for mothers as part of the *Interaction Guidance Study.* To assuage this worry collection procedures were thoroughly described and mothers were reassured that the equipment was designed specifically for use with young children and thus did not pose a choking hazard. In all three exemplar studies we emphasized that the overall benefits of participating far outweighed the potential harms.

Perception of Stigma: Fear of persisting stigma associated with mental illness and the societal perceptions of postpartum depression affect both help-seeking behaviours and engagement in the research process [32,33]. In the *MOMS, MOMS Link*, and *Interaction Guidance* studies, recruitment materials and advertising were tailored to reassure mothers of the common nature of postpartum depression. Furthermore, social marketing efforts and media engagement aimed at raising awareness and improving public education about these mental health issues can help to ameliorate stigmatic sentiments within the target and general populations.

Cultural Considerations: Challenges in recruiting participants from certain ethnic backgrounds may impact the applicability and generalizability of study findings and reinforce already pre-existing inequalities in health service access [34]. Barriers that lead to underrepresentation of ethnic minorities in mental health research include stigma, financial concerns, transportation, immigration status, lack of knowledge of available resources/understanding of mental health services, fear and concern regarding confidentiality, and linguistic and cultural barriers [35,36]. Adequate social support and access to mental health resources are especially important for immigrants who, as a result of migration, may be more isolated with reduced social networks [37].

Le and colleagues described culturally relevant recruitment techniques used with immigrant Latinas in the United States [38]. The authors highlighted the importance of understanding common values of Latino cultures such as the emphasis on familial relationships, adherence to traditional gender and approaching individuals with dignified yet warm personal interactions. The authors also reported that some participants did not appear comfortable in declining invitations thereby giving passive consent, as participants do not want to "disappoint" the research staff. Thus, recruiters should be culturally sensitive to avoid coercion of research participation. Furthermore, when recruiting ethnic minorities, special care must be taken to ensure the full understanding of consent forms—it is prudent to pilot test forms in these instances—and study protocols. They concluded that face-to-face recruitment with a trusted health service provider was far more effective than any other method. MacNeill and colleagues reported similar results when they explored recruitment of ethnic minority participants into a clinical trial in the United Kingdom. Participants' decision to enroll was influenced more by trust in the research team and careful verbal explanations than by written information [34].These findings underscore the need to employ culturally relevant recruitment practices, yet to date, limited research related to recruiting ethnic minorities during the perinatal period exists [38].

Research-Related Barriers to Recruitment

Perception of Researchers: Suspicions toward large institutions and distrust of the research experiences may prevent some individuals from enrolling in studies [36]. Equally, when potential participants have positive interactions with investigators and associated study personnel, these negative preconceptions can be effectively dispelled and research participation encouraged. Researchers can earn participants' trust by showing appreciation for their time and efforts, emphasizing the value of their knowledge and experience, and being trustworthy and engaging [26,39]. In the *Interaction Guidance Study* we found that it was important to emphasize that this was not a judgmental intervention where participants would be lectured about correct parenting, but one that built upon their existing strengths and facilitated their understanding of their infants' complex repertoire of behaviours. This coupled with an affable and pleasant character of the investigator conducting the intervention put mothers at ease and helped to alleviate some of the possible anxiety associated with participation. Furthermore, each exemplar study utilized standardized protocols for answering the telephone, screening, and for face-to-face interactions in order to deliver consistent and responsive communication. Other researchers have also emphasized the advantageousness of well-trained staff capable of conveying empathetic, clear and consistent messages [24,40]. Logos identifying the study's affiliation with trustworthy institutions such as a university or hospital facilitates brand credibility and enhances participants' overall perception of research/researchers.

Explaining Informed Consent: Voluntary informed consent is a central element of participant protection and a critical for earning the trust and confidence of participants [41]. We adopted standardized protocols for explaining the study to potential participants, screening, and facilitating the informed consent process in all exemplar studies. Ideally, informed consent should be an interactive and ongoing exchange between researchers and participants structured to discuss a number of issues including: why the study is being conducted; description of all procedures to be performed; the responsibilities and time commitments requested of participants; benefits and potential

risks; and how the results will be used (i.e., for influencing policy and best practices procedures or guiding a follow-up study). When conducting RCTs, lay terms must be adopted to explain randomization and justify why this is the most appropriate and rigorous method for testing interventions [42]. Participants should be informed of strategies for safeguarding their privacy as well as their right to withdraw at any time. This includes explanations of how data will be used, what will be done with photos, audio and video recordings and which members of the study team can access these materials [41]. Researchers should judiciously explain the circumstances in which confidentiality must be balanced against competing ethical, legal and professional requirements that call for disclosure of information such as obligations to report information to authorities to protect the life or safety of a participant or a third party [43].

Informed consent should never focus solely on obtaining signed forms since this constitutes only a fragment of the process. Ongoing verbal explanations, opportunities for participants to pose additional questions, as well as anything else required by participants in order to have an adequate basis for decision-making must be incorporated.

Time Commitment: Expectations regarding time commitments should be made clear prior to enrollment [20]. Flexibility in arranging study appointments to accommodate mothers' schedules and cause the least interference in competing family and work commitments is critical. Appointments should be booked around the napping and feeding schedules of participating infants and provisions for childcare made for non-participating children. This flexibility must also be reflected in research staffing by employing individuals who can be available outside of traditional work hours. These strategies were used to address participants' time constraints in all three exemplar studies. Many of the home visits in the *Interaction Guidance Study* were made in the early morning, evening or on weekends to accommodate families schedules. Telephone, email, text messaging and in-person communication were essential to clarifying time demands of participation for all three studies.

Research Location: Location of study appointments may be an obstacle to recruitment. Participants expected to travel to a clinic or research lab should have their transportation arranged or travel costs covered as required [20]. Home-based research (provided that participants are amenable to having researchers in their homes) may alleviate burden associated with travelling to specific location. Nonetheless, research location will depend upon the study's design, resources of the investigative team, equipment requirements and potential confidentiality or safety issues [26].Researchers must also consider a number of issues when entering a participant's home such as planning sufficient time for travel and appointments, respecting participant privacy, and ensuring researcher safety. Both the *MOMS* and *Interaction Guidance* studies were entirely home-based. The peer-mentor intervention of the *MOMS Link* study was telephone-based and all additional data collection was conducted over the telephone. Mothers reported that these strategies worked well for minimizing potential inconveniences associated with study participation.

Communication: Convenient and efficient channels of communication must be established early on. Contact with participants may be accomplished via phone, email, text messaging, or face-to-face meetings. Our research team sought extensive advice on communication from our project advisory committees and community partners. Multiple routes of communication and repeated contact of participants may be necessary. Not all participants will be responsive to the same methods or they may simply be too busy to respond at a specific time [26]. For instance, contact via telephone may be problematic in instances where individuals receive a high volume of unsolicited calls or screen calls via voicemail. In the *Interaction Guidance Study* we addressed this particular issue by sending an email to potential participants confirming their preferred method of contact. If telephone contact was desired we confirmed the most suitable day and time and if we had their permission to leave a voicemail. In order to lend credibility and consistency to the study, emails were sent from a research study specific email address and calls were made from a dedicated study line. These arrangements worked well since we were precise about how and when we planned to contact potential participants and remained accountable to our commitments. Once participants were enrolled the majority of communication took place through text messaging and email. This may be attributed to the ubiquity and convenience of smart phones and other mobile devices. Moreover, this proved to be a useful strategy since it was less disruptive than a loudly ringing landline with the potential to wake a sleeping infant (a fact that these mothers greatly appreciated), and participants were able to answer messages at their convenience.

Institutional and Organizational Barriers to Recruitment

Gate-keepers: In community-based research it is often necessary to rely on additional health care professionals to serve as ambassadors for the research by identifying and referring potential participants. These individuals are collectively referred to as "gatekeepers" since they are the first point of access to the target population and hold considerable influence over whether their clients decide to enroll [25,44]. Gatekeepers can help to facilitate recruitment in a number of ways including mentioning study to participants; attaining consent to contact potential participants, and obtaining informed consent. Furthermore, there is a relationship between gatekeeper research orientation (i.e., research literacy, experience in research activities) and their subsequent willingness to be involved in recruitment [21]. Some gatekeepers may have limited research experience and thus hesitate to become involved with recruitment efforts. This may be overcome by emphasizing the potential impact of the research, educating them about study protocols, keeping them well-informed of study progress and engaging them in open, bi-directional communication [26,45].

After approaching relevant community partners, including strategic gatekeepers such as physicians, psychiatrists, psychologists, nurses, social workers, counselors, staff and volunteers at relevant organizations, we worked closely with these individuals and their respective agencies to ensure that they had a comprehensive understanding of research protocols, especially those related to eligibility criteria, requirements of participant enrollment (i.e., data collection and intervention

procedures) and policies for the protection of participants. Since potential participants require a brief overview of a study before making a decision, it is important to provide gatekeepers with clear information on how to discuss the research. Written materials (e.g., referral forms, information sheets, screening and eligibility criteria handouts) should be descriptive yet brief enough to reflect gatekeeper needs for efficiency and clarity. It is crucial to ask gatekeepers what they require to efficiently facilitate identification of potential participants [45]. After consulting with community partners we distilled relevant study information into concise, easily digestible tools for gatekeepers (i.e., one-page flow charts outlining study purposes and protocols) and participant information sheets or brochures for distribution to their clientele. It is also important to continually assess the manner in which study information is being presented to potential participants. Researchers must find ways to maintain control of the message and explanations that are being delivered while still balancing collaboration and ownership with community partners/gate keepers.

Gatekeepers are often rightfully predisposed toward being very protective of clientele, particularly those in vulnerable groups. Accordingly, they may have concerns over ethical issues such as privacy and confidentiality [25] any risk or burden associated with study enrollment, or may query the fairness of RCTs [26]. To assuage these legitimate apprehensions we emphasized our protocols for maintaining their clients' rights to privacy and confidentiality as well as listened attentively and responded swiftly to any further questions and comments. We made concerted efforts to clarify any misunderstandings of the study purpose and research design, reassure partners that every effort was made to minimize participant burden, and emphatically reinforced the necessity of a RCT for assessing the impact of previously untested interventions. These and other messages were outlined and reinforced during face-to-face presentations, regular agency site visits, as well as in follow-up telephone calls, emails and written materials.

Developing trusting, mutually beneficial relationships with gatekeepers can be time-consuming and challenging, yet this is enormously rewarding both in terms of maximizing participant enrollment and in maintaining productive working relationships that can span several research projects. Mutual trust between gatekeepers and researchers is essential for recruitment success, as is mutual trust between gatekeepers and potential participants [26]. A key finding of the *MOMS Study* was that mothers were far more likely to agree to participate when directly invited to take part, rather than be simply told about the study [17]. Thus, this strategy was repeated in the subsequent *MOMS Link* and *Interaction Guidance* studies where our relationships with gatekeepers were essential for successful recruitment.

Organizational Issues: Support from community leaders and service agencies with mutual interests are imperative for successful recruitment. Yet, agency and community partners may face significant impediments for involvement in recruitment activities including competing service demands, insufficient time with clients to discuss research, lack of time for understanding study protocol, high staff turnover or an organizational culture that is unsupportive of research [21,25].These challenges can be exacerbated if multiple research teams are competing for the attentions of gatekeepers and access to participants [26]. Involving community liaisons early on in the research process (ideally in the planning stages) and being considerate of limited resources greatly improves resiliency to these barriers. Engaging in early interactions also provides researchers with the opportunity for learning about the goals of the organization, roles and responsibilities of agency personnel and the services offered. This process also ideally positions researchers for choosing the most impactful and appropriate partners. Indeed, we have found that incorporating recruitment efforts into already existing services (e.g., partnerships with telephone support provider, formal service agencies or postpartum depression support groups) has improved the efficiency of recruitment. Likewise, understanding the inner workings of these organizations has been integral to the success of this approach.

Researchers often engage these associates using the Community Advisory Committee (CAC) approach, where partners can offer their specialized perspectives to help refine research questions, provide guidance for study design, feedback on recruitment strategies, and facilitate knowledge transfer (26). Building on community-based participatory research approaches [46,47], CACs cultivate relationships between researchers and community partners, foster community engagement, and promote translation of research into real world settings. Researchers should establish protocols for brief but regular contact with community partners (i.e., site visits, telephone, email) in order to keep them abreast of study progress and for troubleshooting problems. The method and timing of communication should occur on a mutually agreed upon schedule. Researchers must strike a balance between informing community partners and avoiding inundating them with repetitive information or requests. Upon the study's completion, results may be shared with community partners through formal or informal channels (i.e., presentations to agency personnel, written summaries), thereby promoting a sense of accomplishment and completion. Though preparing publications falls to the researchers, incorporating community partners' voices into scientific literature is of utmost importance and may help allies feel an empowered and valued part of the research process [48]. Community partners should be thanked in authors' notes and listed as contributors to the research process in any peer-reviewed publications, presentations and other dissemination activities.

Agency leaders collaborated in the research process and participated in CACs in both the *MOMS* and *MOMS Link* studies. CACs met regularly (every 3-6 months in the *MOMS* and monthly in the *MOMS Link*) in face-to-face or teleconference meetings and were provided with regular updates in the form of a newsletter. This approach was integral to the success of participant enrollment for both projects. Since the *Interaction Guidance* study was a small pilot project, a full-scale CAC was not utilized: however, community partners provided feedback on the feasibility of study protocols, recruitment strategies and made recommendations for expanding eligibility criteria to increase the size of participant recruitment pools. Following community partner advice was crucial for sustaining collaborative partnerships and ensuring recruitment strategies were adapted to meet the community's specific needs and for building relationships for the full trial to

follow. We also used various strategies to express gratitude to community partners for their contributions such as thank you notes, catering lunches and bringing along snacks, baked goods and coffee during site visits. Although this strategy has yet to be employed in any of our studies, financial incentives or "finders fees" may be offered provided that institutional ethical guidelines are followed [49] . Other tokens of appreciation may include books and other resources for the agency library (i.e., relevant textbooks), pens, coffee mugs and other office supplies with a project or university logo, or restaurant gift certificates.

Promising Recruitment Strategies

Active and Passive Strategies: Recruitment can be broadly classified as active or passive [50]. When utilizing active strategies, potential participants are directly invited to participate. Overtures can be made during one-on-one contacts (i.e., client appointments with gatekeepers), in a group setting (i.e., presentations to eligible groups), or through personally addressed invitations sent via mail or email [51,52]. When using passive or indirect strategies, researchers make an initial effort to gain participants' attention through advertisements in various forms; however, the onus for initiating contact is on the individual [50]. Table 2 provides a summary of the active and passive recruitment strategies utilized in the exemplar studies.

Table 2: Summary of Recruitment Strategies.

Active Methods

• Potential participants directly invited to participate by researchers
• Presentations to relevant groups (i.e., PPD support groups)
• Targeting mailing (i.e., regular mail or electronic mail)
• Gatekeeper referral
  ○ Community partners (i.e., community advisory committees)
  ○ Physicians
  ○ Social Workers
  ○ Psychiatrists
  ○ Psychologists
  ○ Social Workers
  ○ Mental Health Nurses
  ○ Public Health Nurses

Passive or Indirect Methods

• Advertisements
  ○ Newspapers
  ○ Magazines
  ○ Radio
  ○ Television commercials
  ○ Online media
  ○ YouTube ®
  ○ Online classified services (i.e., Kijiji, eBay Classifieds, Craigslist)
  ○ Word of mouth
  ○ Newsletters
• Posters, brochures, flyers displayed in relevant health care settings, community centers, churches, schools
• Public service announcements
• Press releases
• Letters to the editor (newspaper)
• Op-Ed articles
• Media interviews (TV, radio, newspaper) with Principle Investigator or other members of the research team
• Social media (i.e., Facebook, Twitter, Google Plus+, LinkedIn ®)
• Mass mailings
• Webpage dedicated to the research study

An active, personalized approach may be particularly amenable for engaging depressed women who may otherwise lack motivation for enrolling [26,38,53].An advantage of active methods is the efficacy of recruitment can be readily evaluated by calculating precise response rates. A few challenges have been associated with active methods; the significant time and resources required to rely on gatekeeper referral; risk of selection bias (e.g., women not already receiving support cannot be identified as potential participants); and the reality that these approaches may be too confronting or intimidating for some individuals [20]. Perhaps the greatest advantage passive approaches offer is the opportunity to reach a much broader audience then would be possible with active recruitment exclusively. There are however, numerous challenges associated with passive techniques. Passive approaches require that potential participants take the initiative in contacting researchers. Some methods, such as television, radio or community advertisements require contact information to be written down, thus adding an extra step for individuals and increasing the risk of non-response [52]. Whether passive or active, all recruitment strategies require significant resources. Passive approaches such as mass mailings and advertising via TV, magazine or radio can be very costly and are not guaranteed to yield participants. Conversely, Op-Eds, Letters to the Editor, distribution of posters and flyers, and developing an Internet presence are often free or inexpensive.

Studies comparing the efficacy and cost-efficiency of active and passive strategies remain scarce. Raynor and colleagues (2009) reported greater success with active methods while recruiting families for an RCT of pediatric obesity. Page and Persch noted the usefulness of active strategies for recruiting participants in occupational therapy clinical trials [50]. Similarly, McDonald found that studies using active methods (i.e., telephone, interpersonal communication) were 66.5 times more effective than those that employed passive methods (i.e., mass media, mail) [54]. Although we have used a mix of active and passive strategies within the exemplar studies, we have found that personalized recruitment using a direct approach is more effective than generic or impersonal approaches. Potential participants may forget or dismiss information about a study when a passive recruitment strategy is utilized. This may be less likely to occur if they are actively invited to participate by a member of the research team or a trusted gatekeeper. Simultaneous use of multiple recruitment methods (including passive and active) may be best for reaching the broadest and most diverse sample [23,53,55,56]. For instance, the approach employed in the *Interaction Guidance Study* involved displaying posters and information letters within mental health clinics for potential participants to view while our agency partners actively invited clients who suited our eligibility criteria to participate. If clients were amenable to learning more about the study or interested in enrolling then we were provided with contact details and follow up phone call was made. This combination of viewing recruitment materials on display, discussing the study with a trusted health care provider and then having a follow up telephone call with the researcher may enable potential participants to ease into the research process and feel they have had some opportunity to consider the proposed research prior to

making any commitment. The added utility of multiple methods is illustrated by the fact that many of our participants reported that they happened upon information related to our studies multiple times or heard about our research from family members prior to contacting us.

Timing and frequency of approaching potential participants, particularly when employing active strategies, is another issue for consideration. Since depression during pregnancy is a well-known risk factor for subsequent postpartum depression [57], approaching participants' antenatal is practical. Although the majority of the exemplar studies' participants were recruited postnatally, some were identified antenatally. For example, participants of the *Interaction Guidance Study* were all clients of clinics specializing in women's mental health and receiving ongoing treatment for depression. A number of women who were in the final stages of their pregnancies were approached by gatekeepers and asked if they were interested in participating. Whatever the timing of the approach, women's individual situations must be considered prior to inviting them to enroll. For instance, it may not be appropriate to approach participants when they are new clients of an agency but rather more suitable to wait until a trusting, relationship is established. With regards to the frequency of approaching potential participants, if upon initial introduction to the research a client does not appear interested it may be apposite to mention the study again at a later date since some women may require hearing about a study on more than one occasion before expressing interest in participating

Planning and Piloting Recruitment Strategies

Extensive planning of recruitment strategies and conducting pilot trials to evaluate proposed methods helps to identify the most effective and cost-efficient approaches [50,58]. Piloting may help to reconcile practical difficulties associated with recruitment barriers, facilitate estimation of response rates, and assess potential burden on community partners. Piloting also provides researchers with the opportunity to elicit suggestions from potential participants regarding the acceptability of recruitment practices. Plans were scripted well in advance to commencing recruitment in all three of the exemplar studies. We also continually developed and evaluated recruitment strategies based on what was effective in exemplar studies. For example, both passive and active recruitment strategies were employed in the *MOMS Study* (which preceded the *MOMS Link* and *Interaction Guidance* studies); however, active strategies were far more successful. Thus, active strategies have been emphasized over passive strategies in subsequent projects. Developing detailed recruitment plans, continual assessment of individual approaches and mitigating potential recruitment barriers grants researchers the opportunity to maximize the success of recruitment methods and expend limited study resources with the greatest efficiency.

Directions for Future Research

Typically most publications will mention briefly which recruitment strategies were used but it is very rare that researchers include information regarding any formal evaluation of recruitment. In view of the limited evidence on effective recruitment strategies for mental health research, we would recommend that future feasibility and pilot studies include systematic evaluation of different recruitment methods. This gives researchers an extraordinary opportunity to improve upon previous practices. By the same token, further research on barriers to participation (i.e., educational, cultural or socio-economic factors) is needed to ensure representativeness of samples. The deleterious impact of untreated depression on the health and well being of women and their families has been well-documented, underscoring the need to develop effective programs and interventions based on the best possible evidence.

CONCLUSION

Dismal recruitment and inadequate sample sizes are often the most vexing aspects of conducting research. Identifying recruitment barriers and adopting approaches to mitigate challenges is crucial for planning efficient recruitment strategies. In order to maximize the efficacy of recruitment strategies investigators should observe a number of fundamental procedures. Firstly, detailed recruitment plans should be developed and piloted. Recruitment plans should incorporate both active and passive strategies, though active strategies should be emphasized. Additionally, the importance of fostering relationships with community partners cannot be underestimated especially if recruitment is contingent upon gatekeeper referral. Since disproportionate numbers of participants from any single population are likely to undermine generalizability, researchers should employ strategies to target diverse socioeconomic and ethnic samples and utilize culturally relevant recruitment methods. Finally, investigators should endeavour to design studies that make enrollment as attractive as possible including maximizing benefits and minimizing burden. These strategies may optimize recruitment and increase the likelihood of achieving robust sample sizes to safeguard the generalizability of results.

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