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A Collaborative Care Telemedicine Intervention to Overcome Treatment Barriers for Latina Women with Depression during the Perinatal Period

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Abstract

Maternal depression is highly prevalent (10 to 20%) during the perinatal period with rates as high as 35 to 40% for Latinas. However, few Latinas are either identified or treated during the perinatal period. To address these disparities, the Perinatal Mental Health Model (PMH) was designed to ameliorate the barriers that prevent adequate diagnoses and intervention. The PMH is a culturally sensitive, short-term telemedicine, and collaborative care intervention for addressing depression among Mexican American mothers. It attends to sociocultural and socioeconomic dimensions and is delivered by trained mental health advisors within obstetric care settings. This article describes the feasibility and acceptability of utilizing the PMH. Participants (n=79) were selected from a first year ongoing randomized trial in community obstetric clinics. The intervention seems feasible and acceptable; low-income Latinas, identified as depressed during the perinatal period, reported having access to a range of appropriate community services and high satisfaction.

Keywords

maternal depression; perinatal period; collaborative care; Latina women; telemedicine intervention; socio-cultural treatment; barriers to care

Maternal Depression

Maternal depression (MD) affects 10 to 20 percent of women during pregnancy or in the postpartum period (Gaynes, et al., February 2005; Vesga-Lopez, et al., 2008) with rates as high as 35-40% for low-income, culturally diverse women (Knitzer, Theberge, & Johnson, 2008; Moses-Kolko & Roth, 2004; Witt, et al.). Notably, approximately 19% (1 in 5 women) experience MD during the perinatal period (Gaynes, et al., February 2005), yet most are unlikely to receive treatment despite the availability of effective pharmacological

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and psychotherapeutic interventions (Horwitz, Bell, & Grusky, 2007; National Institute for Health Care Management, 2010). MD confers serious health risks for both the mother and infant; increasing the risk for birth complications and causing long term negative effects on child development (American Academy of Pediatrics, 2007; Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala, 2000; National Institute of Child Health and Development, 1999).

Perinatal visits are an ideal venue to screen for and intervene with psychosocial issues as this period is a high-risk time for the emergence of depressive symptoms, and many women have their only contact with the health care system during pregnancy. Yet, obstetric-gynecologic (OB/GYN) or pediatric providers do not routinely screen mothers. Although OB/GYNs believe they are responsible for identifying depression, they often have neither the resources nor training to screen for and treat depression (LaRocco-Cockburn, Melville, Bell, & Katon, 2003). Identified barriers to recognition and treatment include stigma, patient denial, limited provider skills and time, differences in the healthcare delivery system, restrictive insurance coverage, and lack of mental health providers (Goldman, Nielsen, & Champion, 1999). Studies to address these barriers have shown successful depression care requires a systematic approach to detection and treatment (Baker-Ericzén, Mueggenborg, Hartigan, Howard, & Wilke, 2008; Connelly, Baker-Ericzén, Hazen, Landsverk, & Horwitz, 2010) to improve outcomes and the cost-effectiveness of care (Rubenstein, et al., 1999; Sturm & Wells, 1995).

MD impacts low-income women disproportionately (Kessler, Chiu, Demler, & Walters, 2005; McCue Horwitz, Briggs-Gowan, Storfer-Isser, & Carter, 2007). Although research has begun to address issues of ethnic influences on MD (Diaz, Le, Cooper, & Muñoz, 2007; Le, Muñoz, Soto, Delucchi, & Ippen, 2004; Miranda, et al., 2003; Muñoz, Le, Ippen, Diaz, & Urizar, 2007; Yonkers, et al., 2001; Zayas, Jankowski, & McKee, 2003), data suggest that poverty is a powerful predictor of depression regardless of race/ethnicity (Bennett, Einarson, Taddio, Koren, & Einarson, 2004; Hobfoll, Ritter, Lavin, Hulsizer, & Cameron, 1995; Isaacs, 2008; Pascoe, Stolfi, & Ormond, 2006). Alarmingly, depressed low-income ethnic minority mothers do not use available, free community mental health care, perhaps because of the lack of culturally sensitive interventions aimed at ameliorating psychosocial barriers to healthcare for depression (Miranda, Siddique, Belin, & Kohn-Wood, 2005; Verdeli, et al., 2004).

Latinas have been found to be at higher risk of developing depressive symptoms (Howell, Mora, Horowitz, & Leventhal, 2005; US Census Bureau), and less likely to use mental health care regardless of income or insurance coverage than other minority women (Vega, Kolody, & Aguilar-Gaxiola, 2001). In fact, Latina mothers are 3 times less likely to obtain services despite need (Cerda, 2003) yet, the majority of untreated women report positive attitudes about medication or counseling for treating depression (Cabassa, Lester, & Zayas, 2007). Developing strategies to increase Latinas' access to care for MD is critical because the majority of women giving birth are Latinas (Hayes-Bautista, Hsu, Pérez, & Kahramanian, 2003; US Census Bureau) and Latinos will become the predominant ethnic group in the United States by 2020 (Lewis-Fernandez, Das, Alfonso, Weissman, & Olfson, 2005). Moreover, feasibility and acceptability of treatment strategies is of utmost importance due to its direct effect on intervention engagement and compliance (Wheatley, Brugha, & Shapiro, 2003) and previously reported high rates of treatment refusal or attrition for perinatal women (Dennis, 2003).

A major advancement in obstetric healthcare, as well as other primary care settings, is to utilize telemedicine approaches to increase access, engagement and service use (Magann, et al., 2011). Specifically, telemedicine has been recognized for increasing efficiency, extending the scope of obstetric practice, improving pregnancy outcomes, and reducing

costs in the healthcare system based on a meta-analysis review (Magann, et al., 2011). Telemedicine approaches such as phone-based psychotherapy have been found to be particularly useful for low-income Latino populations (Dwight-Johnson, et al., 2011). Additionally, a study found that a phone-based, short-term psychotherapy intervention was both beneficial and cost-effective compared to clinic based provider delivered usual care services for individuals with depression (Simon, Ludman, & Rutter, 2009).

Access to Care Barriers

Effective MD collaborative care models exist for obstetrical settings, however, they have not addressed the unique barriers for Latina populations (Alegria, et al., 2008). These barriers exist at multiple levels: the service system, the community, and the individual (Martínez Pincay & Guarnaccia, 2007). *Service System barriers* include health insurance, language, immigration status, and information about services; each negatively impacting service receipt. Although reducing or eliminating these barriers increases service utilization for Latinos, there remains a lower rate of use compared to European Americans (Norquist & Wells, 1991), suggesting that addressing just these system barriers is inadequate to achieve parity in use. The foremost *community barrier* is a strong sense of stigma surrounding mental illness and *individual barriers* include beliefs about illness and family-cultural values (Perez-Stable, 1987). It has been suggested that community and individual barriers are more important impediments to accessing and utilizing mental health services than system barriers (Cabassa, Lester & Zayas, 2007). Thus, understanding Latinas' beliefs/values and constructing socioculturally appropriate care is critical to overcoming barriers to use of mental health care (Kleinman, 1991).

The importance and value of the family (*familismo*) are among the most salient and empirically supported characteristics of Latino culture (Vasquez, 1994; Vazquez & Clauss-Ehlers, 2005). Latinas internalize the values of family and have a self-expectation to nurture, care for, and maintain the family unit; ignoring their own needs in order to keep the family intact (Vazquez & Clauss-Ehlers, 2005). "*Marianismo"*, refers to Latinas' role of self-sacrifice that puts the needs of children and spouses ahead of their own (Gil & Vazquez, 1996) and normalizes suffering (Kessler, et al., 1994). These beliefs and values have been found to impact Latinas' participation in mental health treatment (Letamendi, Espinosa de los Monteros, & Ulibarri, 2008) and, thus, the cultural value of family must be a focal point of treatment (Vazquez & Clauss-Ehlers, 2005).

Conceptual Collaborative Care Model

Perinatal Mental Health Model

The Perinatal Mental Health Model (PMH) was developed as a culturally competent expansion of the original collaborative care Partnership for Women's Health (PWH) model, designed to facilitate primary care providers' ability to interact with and link patients to mental health services through the use of an outsourced, centralized mental health advisor (MHA) within community obstetric healthcare settings (Baker-Ericzén, et al., 2008). The PMH integrates two empirically supported models: the collaborative care model and the 4 A's model (refer to Connelly, Baker-Ericzén et al., 2010 for a comprehensive review and description of the conceptual model). Not only does PMH apply collaborative care through multidisciplinary relationships and settings it also includes a number of collaborative care model components to address service system barriers through the development of new system elements (i.e. obstetric provider and staff training and resource materials on psychosocial/mental health issues), seamless clinic delivery systems (i.e. onsite screenings and resources at OBGYN clinics and telemedicine follow up intervention)**,** provider decision supports (i.e. psychosocial/mental health guidelines and protocols), and shared clinical

information systems (shared information in electronic records, coordinate care via provider communications of screening and treatment results). Secondarily, PMH incorporates the PWH 4 A's model components (Assessing, Advising, Assisting, and Arranging follow up) in a culturally sensitive manner by utilizing centrally located bilingual, bicultural Mexican American MHAs to address community and individual level barriers (Connelly et al., 2010). The PMH model was designed by a multidisciplinary team (Maternal Health Advisory Team) including obstetricians, pediatricians, nurse practitioners, psychologists, psychiatrists, marriage and family therapists, social workers, researchers, and community members.

PMH Culturally Sensitive Intervention

The PMH model was designed to be tested within a large community based randomized clinical trial at ten obstetric clinics in a metropolitan county in Southern California. The aim of the parent RCT study is to enroll over 400 women from 2009-2012 who have screened positive for depression during the perinatal period and to provide the PMH intervention to half of them (National Institute of Mental Health R01-MH075788; www.casrc.org/projects/atom/collaborativePerinatal). As the study conducted formative qualitative interviews with community clinics it was quickly identified that a substantial proportion of the low-income women served by the local clinics were Mexican Americans. To this end, the research and advisory team worked collaboratively to incorporate culturally competent programming and staff. The adapted intervention model designed for Mexican American women is described below.

Assessing

Assessing for depression is conducted in two phases: (1) a clinical screen using the Edinburgh Postpartum Depression Scales (EPDS)(Cox, Holden, & Sagovsky, 1987), in the mother's primary language (Spanish or English) at regularly scheduled obstetric visits by a bilingual, bicultural staff person, and (2) a follow-up comprehensive diagnostic interview in the primary language for those who screen positive (EPDS≥ 10) by a bilingual, bicultural MHA. To identify women with depression the EPDS, a 10-item questionnaire available in multiple languages, is used. The tool is easy to administer, completed within about 5 minutes, and has a simple scoring system (a recommended clinical cut off score of 10 for community samples to detect minor/major depression) (Wisner, Parry, & Piontek, 2002). The tool has been validated to use with pregnant and postpartum women (D. Murray & Cox, 1990; L. Murray & Carothers, 1990).

MHAs are from a variety of behavioral health disciplines (MFTs, LCSW, PhD/PsyD) and receive comprehensive training on Latina mental health issues, structured interviewing, and the intervention. The MHA training is multifaceted which includes reading articles on Latina health and cultural beliefs, didactic and experiential sessions, modeling and role-playing, practice with feedback, and real-time responding (via on-call supervisor). MHA's receive weekly supervision and are monitored for assessment and intervention fidelity (refer to treatment fidelity section in results for more detail). They too are Mexican American and are encouraged to speak to the mothers about the mother's cultural beliefs during the intervention contacts.

MHAs proactively contact each mother with a positive screen to complete a structured clinical interview via phone or in person based upon the mother's preference. The majority of mothers (over 95%) prefer to be contacted by phone. MHAs introduce themselves as a "Maternal" Health Advisor rather than as a "Mental" Health Advisor because of the stigma associated with the term "mental health" within the Latino community (Connelly, et al., 2010). In order to address individual level cultural barriers, the MHA starts the discussion with the mother by commenting on something shared within the Latino culture such as a

popular novella (Latino televised drama) or holiday custom, which demonstrates cultural understanding and builds rapport prior to asking the structured interview questions. The MHA frames the assessment within the maternal role by reminding the mother that the questions will be about her health which impacts the health of her baby.

Mood and anxiety modules from the Mini International Neuropsychiatric Interview (MINI, version 5) (Sheehan & Lecrubier, 2002) are administered. To avoid the endorsement of depression symptoms resulting from somatic complaints related to pregnancy or a new baby, the MINI was adapted by including clarification prompts for each question which inquire whether the mother feels that way due to pregnancy/baby, her feelings/mood, or both.

The clinical terms “depressed or down” are reported to be inconsistent with the language used by Latina mothers (Cabassa, et al., 2007); these terms were under endorsed in this study population as well. In fact, many mothers inquired about what the term “depression” meant. In order to more accurately assess for depressive symptoms, mothers are encouraged to describe their feelings using their own words. Mothers’ mood descriptors in our sample often include “disconnected or detached”, “sensitive”, “not myself”, “empty”, “unmotivated”, “drained”, or “gloomy and stressed”.

A comprehensive suicide protocol is also completed since our early data showed that 7% of women endorsed suicidal ideation on the screening measure. Through in-depth discussions it became apparent that Latina women commonly think about their own death or a desire to die, but these thoughts are not usually linked to the intention of taking one’s own life (Lindahl, Pearson, & Colpe, 2005).

Advising, Assisting, & Arranging Follow-up

The PMH intervention was designed as a series of modules and each module attends to socio-cultural influences such as poverty, immigration status, acculturation, discrimination, spirituality/religion, values regarding motherhood and family, as well as beliefs about health and mental health. The main intervention goals are to *advise* mothers on depression and treatment options and to *assist* them through support and use of evidence-based practice strategies for mental health promotion. This is accomplished through a short-term, individually focused, experiential approach, specifically designed to be delivered via telephone; an effective intervention method for depression in primary care (Hunkeler, et al., 2000; Simon, VonKorff, Rutter, & Wagner, 2000; Tutty, Simon, & Ludman, 2000). It aims to reduce service system barriers such as economic burdens, transportation problems, childcare concerns, and exposure to immigration risks (described as “immigration sweeps” which mothers fear encountering when going to public settings)(Aguirre-Molina, Ramirez, & Ramirez, 1993). Mothers are both provided information and encouraged to embed the strategies and services into their lives.

MHAs gather information about the mother’s current support systems such as strategies for caring for herself, past and current use of services, insurance coverage, financial situation, and attitudes/beliefs regarding medical and mental health treatment. To guide the amount and type of intervention, the mother’s current symptoms are reviewed by specifically asking about mood, eating, sleeping, energy, functioning, concentration, worry, guilt, and suicidality at each contact.

Intervention Modules

psychoeducation—This module provides information on MD, the negative impact it has on infant development, and the role of medication and therapy in treating depression. This information is tailored by using words and phrases the mother has endorsed and by drawing

on traditional and "folk beliefs" while making the connection with symptoms of MD. It is common for Latina mothers to believe the symptoms they are experiencing are a normal part of motherhood as an aspect of "*marianismo"* and not realize the symptoms described are due to depression and are treatable. A typical comment by a Mexican American mother in our sample is "I didn't know depression could be felt in this way." Similarly, perinatal depressed mothers are less likely to report feeling sad even when they are experiencing depression (Bernstein, et al., 2008).

Next, the MHA discusses the impact MD has on infant development. The mothers are provided information about the negative effects elevated levels of cortisol can have on in utero development (Feldman, et al., 2009; Matthewsa & Meaneyb, 2005; Wadhwa, 2005) and the negative impact depression can have on infant attachment once the baby is born (Ammerman, Putnam, Bosse, Teeters, & Van Ginkel, 2010). Explanations are followed by examples. For instance, the MHA explains how fatigue or "anhedonia" can result in decreased eye contact, diminished infant stimulation, and interaction which can lead to impaired mother/baby attachment. Links are made for each symptom and mothers are given the opportunity to comment on their experiences. One mother in our sample expressed profound guilt upon hearing her infant cry and felt the need to hold her baby at all times (a belief rooted in traditional Latino culture; mothers rarely separate from their baby, providing body contact for extended periods of time)(Maldonado-Duran, Manguia-Wellman, Lubin, & Lartigue, 2002), making her more fatigued, frustrated, and sad because she could not even prepare a meal. She described herself as becoming "detached" from her baby.

Psychoeducation also involves tailoring information about treatment options to the mother's beliefs and values regarding health care (i.e. medication and psychotherapy). Latina's concerns about taking medication have been documented previously (Fernandez y Garcia, Franks, Jerant, Bell, & Kravitz, 2011). In fact, Latina mothers in our sample often had the misconception that therapy is only for severely mentally ill individuals and that "therapy" means they will automatically be prescribed medication. The mothers in our sample described their conceptions from personal or second-hand experiences in Mexico and report that the treatment available in Mexico is primarily medication per their accounts. Therefore they are hesitant to seek treatment when referred in the US due to reluctance to take medication while pregnant or postpartum. MHAs explain what therapy is, the process of therapy, and the effectiveness of evidence-based practices. The role of mental health professionals is described as individuals trained to have conversations about feelings/ emotions and worries (referred to as "platicas" in Spanish) and to provide guidance on how to deal with the symptoms of depression (referred to as "consejos"). Confidentiality is discussed and the mother is reassured that information discussed in therapy in the US is not shared. Emphasizing confidentiality is key because Latinas in our sample and elsewhere have expressed concern about their family or social circle becoming aware of their problems which becomes a barrier to accessing services (Nadeem, et al., 2007).

Similarly, MHAs offer comprehensive information about psychopharmacological treatment. The role of a psychiatrist is explained and medication efficacy and safety during pregnancy and/or while nursing are discussed. Mothers are encouraged to write a list of questions that they may have regarding medication and to discuss these with their psychiatrist, obstetrician, or primary care physician. These strategies empower the mothers to become informed consumers and shared decision makers.

normalizing depression—It is not uncommon for mothers in our sample (as reported elsewhere) to be unaware they are experiencing depression (Alvidrez & Azocar, 1999; Whitton, Warner, & Appleby, 1996); once the connection is made they often feel ashamed or embarrassed. MHAs normalize the condition by utilizing different approaches including

discussing prevalence statistics, pointing out culturally relevant famous individuals who have openly discussed MD, and addressing common myths associated with depression.

Prevalence rates are discussed and compared to prevalence rates of other perinatal conditions. For example, a mother may be told depression affects women of all cultures and ages; 10-15 out of 100 women will experience symptoms of depression compared to only 2-5 women who will experience gestational diabetes. They are reminded that this number reflects only what is reported by women and that the actual rates are likely much higher (Gavin, et al., 2005). Issues related to the Latino culture and the associated stigma towards depression is discussed (from our experiences the mother often comments that depression is not something that is openly discussed in her Latino culture). Many mothers in our sample disclose that they feel an expectation to endure suffering without complaint, and they often report a familial history of depression. Acknowledging depression in the manner described above helps reduce feelings of shame.

emotional support—Although defined as an intervention module, emotional support is provided during all of the telephone contacts. Providing direct emotional support to Latina mothers in our sample is particularly important as they often do not have (due to transient status of moving from Mexico or a central America country to the US) or feel reluctant to use (due to socio-cultural community barriers) existing support networks per their report. A focus on emotional support is also consistent with the Latino culture described as “personalismo” and “simpatía” indicating a preference for a warm and personal approach during an interaction (Marín & Marín, 1991). MHAs begin by delivering emotional support and then transition to assisting mothers in establishing an effective support system of their own.

MHAs provide abundant praise for coping with the changes of being pregnant or being a new mother (e.g., “You are doing a good job as a mother”). This increases the mother’s motivation to change and is consistent with the cultural norm that Latinas will access care for the well-being of their child over their own needs (Magaña & Smith, 2006; Rueda, Monzo, Shapiro, Gomez, & Blacher, 2005). Emotional support is also provided to the mothers through reflective listening. Mothers in our sample frequently comment “I feel like I am being heard or listened to. I feel comfortable sharing experiences with [the MHAs].” Mothers are taught how to communicate their feelings and experiences to others, eliciting supportive listening from those around them. Current or future individuals who can become a source of support are identified, and mothers distinguish what type of support is available from each individual (e.g., partner for companionship, girlfriend for listening, neighbor for assistance).

cognitive-behavioral strategies—Mothers are taught and coached on three strategies: behavioral activation (Martell, Addis, & Jacobson, 2001), exercise (Richardson, et al., 2005), and cognitive restructuring (Muñoz, et al., 2007). When discussing behavioral activation, mothers are guided in creating a list of pleasant activities and then determining how to increase those activities. They are encouraged to “start slow and keep it simple.” If the mother has been medically cleared to engage in exercise, she is encouraged to do so. Mothers are encouraged to resume activities, such as going for walks or engaging in other kinds of exercise, that they used to enjoy but believe they are no longer able to participate in. Suggestions are made on how to include infants in the activities. Explanations of the benefits of exercise include a discussion of endorphins and their impact on mood (Leith, 1994; Thorén, Floras, Hoffmann, & Seals, 1990), as well as how limited periods of exercise increase energy and health (Martell, et al., 2001).

One barrier to participating in exercise in the postpartum period is related to the cultural belief of "*cuarentena",* a 1 – 2 month period of time when the newly delivered woman should avoid physical activity and not be exposed to wind or drafts of air (Ammerman, et al., 2010). "*Aire"* is a fear that entrance of air into the body of the woman or baby could cause serious illness (Viesca-Trevino, 1992). Mothers are encouraged to exercise lightly indoors (e.g., marching in place, yoga, or dancing with their infant) to be culturally congruent.

As cognitive restructuring is a foreign concept to most Latina mothers, it is explained that "by changing thoughts, one can have control over how one views situations." MHAs use a culturally relevant approach to support mothers to change their day to day experiences by shaping their "internal" realities (Cuijpers, Muñoz, Clarke, & Lewinsohn, 2009; Muñoz, 1996). Many women are unaware of the links between cognitions, emotions, and actions. However, once informed, mothers typically are motivated to attend to their thoughts and to work on changing them. Negative thoughts are introduced following the brief "BLUE" acronym (B "blaming myself", L "looking for bad news", U "unhappy guessing", and E "expecting the worst"). Mothers are asked to provide examples of negative thoughts, practice labeling, and replace them with realistic/positive thoughts. They are encouraged to identify positive aspects of all situations and to make an effort to state positives each day by incorporating such statements into their daily routine (e.g., saying 5 positives each night during dinner).

coping and stress management—In this module, attention is directed to self-care and lifestyle changes. An emphasis is placed on caring for oneself to enable one to care for one's child through the analogy of the emergency procedures on an airplane. Mothers are reminded that in the event of an emergency on an airplane, adults are instructed to put on their oxygen mask first, prior to putting the mask on their child. They are probed regarding their conceptual understanding of these instructions and reminded that in order for the adult to be able to help the child they need to be in their own optimal health. This analogy is brought back to the mother's life and is incorporated with the cultural belief of "familismo" (described earlier). She is reminded that in order to care for her baby effectively (her main goal), she must meet her needs first and take care of herself. The conversation then turns to a discussion of functional (e.g., self-distraction, positive reframing, acceptance, planning, using humor, spirituality, seeking information, organization, helping others, and accessing services and supports) versus dysfunctional (e.g., substance use, denial, eating, behavioral disengagement/avoidance) coping strategies (Carver, Scheier, & Weintraub, 1989). Mothers are asked how they have coped with stressful situations in the past, what strategies have worked, and how can they be employed with the present situation. Mothers are reminded that all stress should be managed positively, even minor stress, as it impacts mood states.

Mothers are specifically prescribed to do acts of self-care (e.g., take a long bath/shower) since often these acts are viewed as luxuries that are secondary to their children's and families' needs (as reported by mothers in this study). MHAs explain that small amounts of self-care are reasonable and necessary. Mothers are also encouraged to make simple lifestyle changes that could greatly impact mood, including establishing a routine, taking a nap when the baby sleeps, letting up on a few chores, or asking others to help them. Latina mothers are often reluctant to ask for help for fear that they will be viewed as incompetent (Dennis & Chung-Lee, 2006). MHAs role-play via phone with the mothers on how to enlist help and demonstrate how to make polite direct requests for assistance. Mothers in our sample often require language scripts as asking for assistance can be a significant cultural shift. Mothers are encouraged to not assume that others will know when they are overwhelmed or when they need assistance, but rather to be proactive about requesting it. Interestingly, the mothers

in this study have commented on their surprise that others (i.e. partners, family members, neighbors) are actually willing and eager to help when they simply ask.

referrals—The mothers are primarily referred to mental health services available in their community along with support groups, public health nursing in-home visitation services, and hotline/warmline options. A number of women are also interested in child development supportive services such as parenting classes/groups, baby development classes, breast feeding supports (i.e. La Leche League), and play groups. A substantial proportion of women are in need of broader social service supports such as the Women, Infants, & Children (WIC) program, food stamps, shelter/housing, and social security, so MHAs provide assistance in obtaining these related services.

MHAs are trained to provide each of the intervention module components, however, the order and amount of time spent on each is tailored to the individual mother. The MHAs flexibly deliver the intervention components capitalizing on opportune times. For example, they may begin a contact by providing psychoeducation and then immediately shift to offering emotional support and addressing coping strategies because the mother becomes tearful. Some mothers are difficult to reach by phone (or in person) so the MHA makes clinical decisions about the most necessary aspects of the intervention package to deliver when she does make contact. A case example is provided in Box 1 to demonstrate the integrative nature of the intervention modules.

Feasibility Pilot Study Methods

Since the original study involved making significant adaptations to the intervention for Mexican American mothers, we conducted a feasibility study on the first 79 Latina women who received the PMH intervention in the first year of the larger community based randomized trial. The information provided describes the feasibility and acceptability of the intervention. As is recommended for feasibility studies, this paper does not report on the primary outcome measures or conduct hypothesis testing (Arain, Campbell, Cooper, & Lancaster, 2010). Full results of the large study including hypothesis testing on standardized outcome measures for mothers and babies will be presented at the conclusion of the RCT trial. Mothers' accounts described here are self-reports of their experiences and symptomatology from this subsample. Baseline information was collected at the time point of the first positive screen.

Sample

Participants were low-income Latina women receiving perinatal services across the perinatal period, in publicly funded OB/GYN community clinics located in Southern California, who screened positive for MD. Women enrolled in the first year of the larger RCT study participated in this internal feasibility sample (n=79). Inclusion criteria included screening positive for depression (score of ≥ 10 on EPDS), pregnant or 6 week postpartum, speaking English or Spanish, living in the US and able to be contacted and receiving at least 1 session of treatment. Over 90% of the 79 women were Mexican-American. Seventy-one percent were immigrants, with 66% born in Mexico. The majority indicated Spanish as their primary language (79%) and received the intervention in Spanish. Many reported low levels of acculturation with 65% scoring as very Mexican oriented on The Acculturation Rating Scale for Mexican Americans – II (ARMSA-II, Cuellar, Arnold, & Maldonado, 1995) measure. The mean age was 26.3 years (*SD*=6.2) with 29% reporting a first pregnancy. In terms of relationships, 57% percent reported being "never married"; 77% had an intimate partner and 98% of those women reported that the partner is the baby's father. Most women were poor and under-educated, 57% had less than a high school education; 73% reported a yearly

income less than $30,000. About 89% were publicly insured (Medical/Medicaid), 33% were receiving food stamps, and 89% were receiving WIC. Refer to Table 1. All research procedures were approved by the appropriate administrative and university Institutional Review Boards for the protection of human subjects.

Feasibility and Descriptive Results

Maternal Reports of Depressive Symptomatology

Mothers qualitatively reported a number of depressive symptoms during the MHA initial contact at baseline. Over half (51-65%) reported having a depressed mood, sleep disturbance, and diminished energy level associated with depressed mood before intervention. Note: mothers often did not use the word “depressed” when describing their mood as described earlier. MHAs apply the rating of depressed mood based on the mother’s detailed description of their feeling during the phone contact. Approximately 40% reported elevated feelings of worry and decreased interest in activities. About one-third reported changes in either eating, changes in psychomotor functioning, excessive guilt or feelings of worthlessness, and/or difficulty thinking or concentrating. Few women reported suicidality (3%). The mothers mean score on the Edinburgh Postnatal Depression Scale (EPDS) was 13.34 (sd=3.48) well above the clinical cut off score of 10. Refer to Table 2 for a list of reported depressive symptoms and percents of occurrence.

Intervention Feasibility Data

Treatment Engagement—The majority of women randomly assigned to the intervention in the first year of the study (74%) were reached by phone and received intervention (n=79). The intervention was designed to be short-term and responsive to the transient nature of the mothers’ life circumstances which often limit professional contact. The number of phone contacts provided by MHAs ranged from 1 to 14, $M = 3$, $SD = 2.3$, total time spent delivering the interventions via phone conversations ranged from a few minutes (3) to hours (up to 5) with a mean of 47 minutes per mother ($SD = 47.5$). The average contact length was 14 minutes ($SD = 7.3$). Intervention dose varied according to the needs of the women per the individualized intervention design, patient preferences, and at times an inability to contact the mother for further intervention. About half of the women (55%) terminated intervention in a mutually agreed upon fashion with the MHA (completing treatment plan). Few women (15%) terminated intervention prematurely (mom requesting to not receive additional phone contacts prior to completing treatment plan) and 30% were unable to be reached to deliver further intervention.

Treatment Adherence—Most participants received psychoeducation (85%) which included a focus on providing information on: MD (82%), impact of depression on infant development (46%), medication (48%), and therapy (57%). Almost all received emotional support (87%); 49% received specific information normalizing depression (40% on prevalence, 15% on “famous” individuals with depression). Mothers received information and coaching on behavioral activation (41%), exercise planning (54%), cognitive restructuring (20%), coping and stress management (45%), self-care strategies (52%), lifestyle change guidance (26%), and case management and other service system navigation support (24%).

Referrals to additional services for treatment and support were made based on the mother’s reported needs and/or reported interest in accessing a particular service (see Table 3). The top three referrals were: mental health hotline/warmline number (83%), therapy (62%), and therapeutic groups (51%), followed by services to directly support their infant’s development: parenting classes (48%), baby classes (35%), and breast feeding programs

(42%). Other referrals included shelters/housing (24%), WIC (22%), and food stamps (4%). Refer to Table 2.

Treatment Fidelity—MHAs were trained using standardized procedures and followed a written treatment manual and study protocol. Procedures included in vivo practice and role-playing, review of audiotapes, discussion, and treatment adherence feedback from the fidelity measurement tools. MHAs also receive weekly supervision with case discussions and booster training sessions to minimize drift. MHAs completed an intervention checklist for each patient contact and blind trained coders listened to 72% of the intervention audiotapes and coded each contact using the same intervention checklist and an additional rating form developed specific to the PMH RCT. Additionally there were separate intervention and control MHAs to protect against contamination. The overall reliability rating between MHA and reviewer intervention codes was 83%. The treatment codes ranged from 67% (cognitive restructuring) to 94% (behavioral activation). Refer to Table 3.

Satisfaction

Mothers' Comments—Many mothers (>30) spontaneously commented to a project staff member about their participation in the study and their interactions with a MHA. These comments were recorded and categorized. Comments include positive statements about the impact of understanding depression and the cultural barriers they experienced related to their depression prior to this program, such as "I didn't know what depression was and how it's treated, I will now be able to identify it as well as know what the *treatment options are*", "*Thank you for telling me this* [depression prevalence statistics]. How come no one in my culture talks about this? You don't know how much this helps me" and "It is the first time I speak to someone about my feelings." Mothers also provided many positive statements about the impact of the MHA intervention. For example one mother said:

> The talks I've had have helped to improve my mood and communication with my family. I have applied the relaxation techniques, listen to music I enjoy at night, and being able to speak with someone about how I feel as well as learn about my feelings has helped me to cope better.

Another mother said:

> I feel I can now go out of my home, go to church, and feel more in control of my emotions. I feel much better than before and have learned a lot about myself and how to monitor my symptoms as well as learning how to cope when I'm not feeling well.

Also, a mother commented, "I feel very grateful, and since I have been able to change my emotions and thoughts I feel there have been more open doors in my life." Many mothers state particular appreciation for the opportunity for phone conversations with the MHA. One mother said:

> To have someone to talk about the way I feel and learn about self-help has helped me in reducing my high pressure, I feel more at ease and have learned how to talk to someone about the way you feel. This has been very important to me.

and another said, "I feel I have changed because of the talks I had with an MHA and I feel my mood has improved." The mothers also commented about specific intervention strategies including cognitive restructuring, self-care, and coping that were impactful to them such as:

> Since the conversations that I had with you, I felt ready for a change in my life. These changes include changing my perspective on life, my thoughts, and my feelings. Before, I would think of everything in black and white and mostly

> negative. I now try to focus on the positive as much as I can and started questioning my thoughts and feelings instead of just allowing them to take over me.

Another mother said, “Learning about self care and self help has increased my motivation and helped me to keep on going.” Mothers commented about the positive linkages to available services in the community, “Thanks to you I have looked for help and I now feel a lot better.”

Mothers also reported some additional barriers or concerns. For example, mothers were concerned about their cell phone minutes as most often that was the only means of contact available, and they would not answer or keep the contact short so as not to use up their minutes. Mothers also commented that they did not follow up on accessing additional services referred to because of feeling unable. One mother stated, “I was feeling depressed and didn’t follow up or use services because at that time nothing mattered”. On the other hand, a few mothers reported they didn’t need the assistance as they were not feeling depressed any longer. Last, mothers reported positive views about the study overall and their own participation such as, “It’s good that you conduct these kinds of studies because they help moms a lot.” and “believe me or not some Mom’s can really benefit from this study.”

Phone Survey—A sample of 31 mothers (39% of the study sample) completed a satisfaction phone survey one month or more after treatment ended (mothers were sampled regardless of the termination reason). Almost all mothers (97%) reported remembering talking to the MHA about maternal depression and 77% remembered receiving a resource list about available services in the community for mothers with depression. Only 19% reported seeking out any services on their own without the assistance of the MHA. When asked specifically about the contacts with the MHA, 94% reported the MHA understood their situation, 97% reported the MHA was knowledgeable about maternal depression, 97% reported the MHA was helpful, and 91% reported receiving all of the assistance they needed. Almost all of the mothers (97%) reported overall satisfaction with the MHA intervention and 100% rated the quality of the MHA service as high.

Discussion

Given the sparse information about the ability to engage participants from diverse populations in mental health interventions and even less information about telemedicine approaches with Latina mothers, information was collected regarding the feasibility and acceptability of a collaborative care culturally sensitive approach to address maternal depression in Mexican American mothers. Preliminary results suggest that the Perinatal Mental Health (PMH) model can engage low-income minority women to identify and address their depression during pregnancy and the postpartum period. Mothers report a preference for phone contacts compared to a clinic visit, however, this telemedicine approach is not without barriers. Mothers reported a concern about utilizing their cell phone minutes and the costs incurred. There were also challenges in reaching the mothers due to poor cell phone coverage, or expired minutes, and having no other means of contact. Another barrier to contacting the mothers was their transient status, frequently moving from one friend or relative house to another. Observations found 30% of the mothers were unable to be subsequently reached shortly after their obstetric office visit or first phone contact by the MHA, most often due to one or more of the barriers stated above. Anecdotal accounts also revealed mothers frequently crossed the border to live in Mexico for prolonged periods. Additionally, 14% of mothers terminated treatment prematurely. Anecdotal comments from mothers suggest they may terminate treatment because of their perspective of improved emotions and no longer feeling a need for assistance. Further investigation is needed to

understand the possible differences in “recovery” criteria between mothers and providers to determine whether the conclusion of treatment is truly “premature”.

The satisfaction reports and spontaneous comments speak highly of the phone-based intervention approach. There appeared to be no concerns about rapport building, working alliances and engagement with the absence of face-to-face contact during this study. In fact the use of phone therapy has been found to reduce costs and increase patient satisfaction in other depression studies (Dwight-Johnson, et al., 2011; Simon, et al., 2009).

Limitations

This feasibility evaluation is promising due to the positive findings in treatment engagement, fidelity assessment and participant satisfaction but it is not without limitations. The sample size of 79 mothers is probably sufficient for pilot work but limits the ability to make interpretations or inferences to other samples. The Latina women in this program evaluation were also primarily Mexican American representing only one specific cultural group within the larger Latino race and cautioning against making generalizations to Latinas as one race/ethnicity (Perez-Stable, 1987). Last, the intervention described was clearly valued by the mothers, however; the level of effectiveness in reducing symptoms is yet to be determined and is currently under investigation.

Conclusions

Assessment and treatment of perinatal depression is possible even in populations of women who experience numerous systems, community, and individual barriers, especially when delivered within a telemedicine collaborative care approach. Attention should be placed not only on detecting symptoms in women at elevated risk for depression in routine care, but also on providing a gateway to mental health services for women who do not otherwise receive such care through shared or integrated systems. Using culturally sensitive outsourced mental health professionals who focus on providing education about depression and link the importance of treatment to cultural values appears to be feasible and possibly essential for engaging low-income Latina women who screen positive to address their depression symptomatology. It is important to allow women to use their own language to describe their mood states and to assist them in understanding the concept of depression. It is also necessary to reinforce the confidentiality of all interchanges, which may help to overcome some of the stigma associated with mental health issues in the Latino culture. Most importantly, having a flexible treatment protocol that can respond to a woman’s needs underscores the potential usefulness of the intervention for women. Observations from the first 79 Latina participants in a large community based randomized trial demonstrate that the short-term telephone intervention delivered by trained mental health/health professionals is feasible and acceptable to low-income, depressed, minority women. It further appears to have promise for linking women to a range of appropriate community services.

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Box 1

Case Example

A Latina mother in her mid twenties reported various symptoms of depression including tearfulness, exhaustion, significant guilt and worry and changes in her eating and sleeping. The MHA first educated the mother about maternal depression and normalized the condition for her in a culturally congruent way. After this initial conversation, the mother commented to the MHA that she felt heard and understood for the first time. This comment led the MHA to inquire about her sources of support. The mother stated that she did not receive support from her husband because it was something she was expected to endure; however, the mother also stated that she had not told her husband about how she had been feeling for fear that he would think she was "crazy." The MHA discussed this with the mother and encouraged her to sit down with him and share how she was feeling. Through role-playing with the MHA, the mother practiced how to share her feelings and request assistance from her husband. She was encouraged to talk with him when she felt ready. The following week the mother reported that she shared her feelings and provided her husband and other extended family members with psychoeducation about depression. She learned that her own mother suffered similarly during pregnancy and postpartum periods. The mother was also provided with information about a number of resources available in her local community. Over a few weeks, this mother gained the full support of her spouse and he even thanked the MHA for her assistance. Next the MHA introduced cognitive-behavioral strategies of behavioral activation through increasing pleasant activities, changing cognitions from negative to positive and incorporating some exercise into her daily routine. The mother was responsive to each strategy and explained each to her husband in order to enlist his support. The mother's symptoms improved significantly and she followed through with the therapy and medication referrals that were provided. This mother was responsive to the interventions once she felt understood, informed and supported.

Table 1

Latina Mothers' Demographics (n=79)

Demographic Variables	Mean (SD) or %
Age (range)	26.3 (6.2) (16-40)
Immigrant status: Country of Birth	
US	29%
Mexico	66%
All other countries	5%
Primary Language	
Spanish	79%
English (other)	20% (1%)
Acculturation Level	
Very Mexican Oriented	65%
Mexican Oriented -Bicultural	19%
Slightly Anglo Oriented-Bicultural	16%
Marital Status	
Married	25%
Divorced/separated	17%
Never married	57%
Other	1%
Have a partner	77%
Partner is father of baby	98%
Number of Pregnancies	
1	29%
2	21%
3	23%
4 +	27%
Education Level	
< 6^{th} grade	13%
< 12^{th} grade	44%
High School or GED equivalent	21%
Some college	11%
2 yr or 4yr college degree	11%
Employment status	
Not working	66%
Working full time	14%
Working part time	20%
Household Income	
< $15,000	57%

Demographic Variables	Mean (SD) or %
$15,000-29,999	13%
$30,000-54,999	4%
> $55,000	0%
Don't Know	26%
Involvement in Public Assistance Programs	
Women, Infants, and Children (WIC)	89%
Food stamps	33%
Medical/Medicaid	89%

Table 2

Mothers' reported symptomatology at baseline (n=79)

Symptom Variables	Baseline Mean (SD) or %
EPDS	13.34 (3.48)
Clinical Interview-symptoms present due to mood	
Depressed mood	65%
Insomnia or hypersomnia	51%
Reduced energy	53%
Reduced interests/activities	44%
Worry	39%
Increased or decreased appetite	34%
Impaired psychomotor functioning	29%
Worthlessness or excessive guilt	27%
Impaired concentration/thinking	33%
Suicidality	3%

EPDS= Edinburgh Postnatal Depression Scale.

Table 3

Types of referrals provided to mothers (n=79)

Referrals Made To Mothers	Percentages
Treatment	
Prescribing Provider: Psychiatrists, PCP, OBGYN, NP, etc	49%
Therapeutic Provider: Psychologist, LCSW, MFT, etc.	62%
Support Group	51%
Warmline/ Hotline	83%
Hospital	3%
Child Development	
Baby Class	35%
Parenting Class	48%
Breast Feeding (i.e. La Leche League)	42%
Social Services	
Women, Infants & Children (WIC)	22%
Food Stamps	4%
Shelter/housing	24%
Public Health Nurse	4%
Safe House	6%
Other	28%

Note: PCP= Primary Care Physician, OBGYN=Obstetric-Gynecology Physician, NP=Nurse Practitioner,Other includes referrals such as immigration support programs, attorneys, social security office, Medical assistance etc.