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Pediatric-based intervention to motivate mothers to seek follow-up for depression screens: Motivating Our Mothers (MOM) trial

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Abstract

OBJECTIVE—To determine the initial effectiveness of a novel, pediatric office-based intervention in motivating mothers to seek further assessment of positive depression screens.

METHODS—In this pilot randomized controlled trial, English-speaking mothers (n=104) with positive 2-question depression screens and presenting with children 0–12 years old for well-child care to a general pediatric training clinic received interventions from a trained research assistant. The Motivating Our Mothers (MOM) intervention included office-based written and verbal

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targeted depression education and motivational messages encouraging further depression assessment and a semi-structured telephone “booster” delivered 2 days later. The control intervention included non-targeted written and verbal messages and 2 days later, an attention control telephone survey. Both groups received a list of depression care resources. The primary outcome was the proportion of mothers in each group who reported trying to contact any of 6 types of resources to discuss the positive screen at 2 weeks post-intervention (ClinicalTrials.gov NCT01453790).

RESULTS—Despite 6 contact attempts, 10 MOM and 9 control mothers were lost to follow-up. More mothers in the MOM intervention tried to contact a resource compared to control (73.8% vs. 53.5%, difference 20.3%, 95% CI for difference −0.1% to 38.5%, $P = 0.052$).

CONCLUSIONS—Mothers receiving the MOM intervention made more attempts to contact a resource for follow-up of positive depression screens. If found effective in larger studies, MOM may prove a promising approach for motivating depression screen-positive mothers identified in general pediatric settings within and beyond the postpartum period, to seek further depression assessment and support.

Keywords

Maternal Depression; Screening; Primary Care; Motivational Intervention; Depression Care-Seeking

INTRODUCTION

Depression is a leading cause of disability in the US. It is common in mothers parenting young children and negatively impacts mothers' well-being, parenting, and compliance with pediatric preventive services and practices.^{1–3} Children cared for by mothers with untreated or undertreated depression are at higher risk of poor health, psychiatric disorders, abuse, utilization of higher acuity healthcare, behavioral-developmental problems and medical morbidity.^{3–5} Mental health therapies targeted to mothers have demonstrated beneficial effects on maternal functioning and depressive symptoms. Reduction of mothers' depressive symptoms is associated with the prevention and improvement of psychiatric, behavioral, and developmental problems in their children.⁶ However, maternal depression therapy is underutilized.^{1,7} While the contributing factors are complex, there is evidence that mothers in need of depression care face barriers in diagnosis, care-seeking, referral, and treatment.⁸ Growing evidence, primarily in the postpartum period, suggests that interventions targeted to some of these barriers can improve the utilization of maternal depression care.^{9–11}

Pediatric visits provide an opportunity to identify mothers with depression and motivate them to take up effective treatments. Because pediatricians care for 80% of children up to 5 years of age¹² and children are seen at regular intervals for well-child care, mothers are more likely to see their child's pediatrician than their own health care provider in a given year.¹³ Mothers understand that their emotional health affects their child's well-being and, if placed in that context, find it appropriate for pediatricians to inquire about depression and recommend follow-up.^{14,15} Pediatric providers know that maternal depression affects children's well-being and health practices and are receptive to guidelines recommending

pediatric-based maternal depression screening.^{16,17} Pediatric-based maternal depression screening instruments have been validated^{18,19}, universal screening programs in pediatric settings have been successfully tested^{9,11} and 16–39%^{2,9} of mothers accompanying children to pediatric visits have been found to have positive depression screens. While literature on the uptake of maternal depression care referrals in pediatric settings is encouraging^{8–11,20,21}, no standardized pediatric-based approach exists for encouraging depression-screen-positive mothers to seek further assessment followed by treatment if indicated. Pediatricians report that a lack of training and confidence in addressing positive maternal depression screens are barriers to both screening and referral.^{10,16,22} The best ways for pediatricians to provide maternal depression education and advice have not been determined. Developing effective approaches could ultimately improve both screening uptake by pediatricians and care uptake by these mothers.^{10,16}

We report on a pilot randomized controlled trial of a novel intervention to motivate screen-positive mothers in pediatric offices to seek further depression assessment and possible care. We hypothesized that an intervention emphasizing motivational and educational messages based on the mother's maternal role and their children's well-being would be more effective than a control intervention lacking those aspects. Our objective was to assess the initial effectiveness of a practical pediatric-based intervention in promoting seeking of further assessment and possible care for positive maternal depression screens.

METHODS

DESIGN AND PARTICIPANTS

We conducted a randomized controlled trial comparing a novel intervention, Motivating Our Mothers ("MOM"), with an active control intervention ("control") in a general pediatric trainee and faculty practice from August–November 2011. The clinic draws from a large urban, suburban, and rural catchment area in Northern California. While the rate of a positive 2-item depression screen (online supplement), Box 1¹⁸ in mothers during a previous quality assurance project was 20%, there was no depression screening in the clinic at the time of the trial. The local Institutional Review Board approved the study, and it was registered with ClinicalTrials.gov (NCT01453790).

Box 1

Measures Used to Assess Eligibility and Primary Outcomes for the MOM Pilot Trial

Depression Screening Questions and Additional Trial Eligibility Question

- 1 Lately, do you feel down, depressed or hopeless? Yes or No?
- 2 During the past month have you often felt little interest or pleasure in doing things? Yes or No?
- 3 Are you currently seeing a psychiatrist, psychologist, therapist, counselor or other mental health provider? Yes or No?

Participants were potentially eligible with a "Yes" answer to 1 and/or 2 (sensitivity 74% and specificity 80%)^a and a "No" answer to 3.

Outcome Measure: Intention to Contact Any Resource to Discuss the Symptoms in the Depression Screen

- 1 I intend to contact someone over the next 2 weeks to talk about feeling down, depressed, hopeless or having little interest or pleasure in doing things.
- 2 I will try to contact someone over the next 2 weeks to talk about feeling down, depressed, hopeless or having little interest or pleasure in doing things.
- 3 I plan to contact someone over the next 2 weeks to talk about feeling down, depressed, hopeless or having little interest or pleasure in doing things.

Participants were asked to rank their agreement with these three statements on a scale from 1–7 (Strongly Disagree – Neither Disagree nor Agree – Strongly Agree). The mean across the three items was determined, with higher scores indicating stronger intention.

Outcome Measure: Attempt to Contact any Resource to Discuss the Symptoms in the Depression Screen
In the last 2 weeks [or “6 weeks” when administered at the 8 week follow-up], have you **tried** to contact:

- 1 a *medical provider* to **discuss** feeling down, depressed, hopeless or having little interest or pleasure in doing things? A medical provider is a *doctor, nurse practitioner, or physician assistant*.
- 2 an *OB/GYN* to **discuss** feeling down, depressed, hopeless or having little interest or pleasure in doing things?
- 3 a *mental health professional* to **discuss** feeling down, depressed, hopeless or having little interest or pleasure in doing things? A mental health professional is a *therapist, counselor, psychologist, psychiatrist, or social worker*.
- 4 *your child’s pediatrician* to **discuss** feeling down, depressed, hopeless or having little interest or pleasure in doing things?
- 5 a *website* to **learn** more about feeling down, depressed, hopeless or having little interest or pleasure in doing things?
- 6 a *pastor, priest, rabbi, imam or spiritual counselor* to **discuss** feeling down, depressed, hopeless or having little interest or pleasure in doing things?

Participants were asked each question separately and asked to respond “Yes” or “No.” For the primary outcome, they were considered to have attempted to seek care if they answered “Yes” to any combination of questions.

^aSensitivity and specificity for the 2-question depression symptom screen were determined by comparison to the Beck Depression Inventory II in a study by Dubowitz H, Feigelman S, Lane W, Prescott L, Blackman K, Grube L, Meyer W, Tracy K. Screening for depression in an urban pediatric primary care clinic. *Pediatrics* 2007;119(3):435–443

Our recruitment process occurred in 3 steps (Figure 1). First, we identified 2,111 scheduled well-child appointments for children 0–12 years old. Second, we identified for eligibility screening those 1,685 consecutively presenting adults accompanying the children who kept the appointment. Of these, 171 adults declined eligibility screening, 210 were not approached because scheduling data indicated that they were non-English-speaking, and 102 left the clinic before they could be approached. Third, the remaining 1,202 adults were screened for eligibility. To be eligible, mothers were required to be 18–65 years of age, have a positive written 2-item depression screen (administered as part of eligibility screening and not clinical care), and report not receiving professional care for any mental health condition during the previous 12 months.^{18,23} Of the 128 mothers meeting study eligibility criteria, 24 (19%) declined participation and 104 (81%) were consented to the study (described as a test of a “long way” versus a “short way” of providing information for parental emotional health) and randomized. We chose the sample size of 104 (with 52 randomized to each group) based on power calculations and to account for dropouts. A statistician not associated with the trial randomized intervention allocation in blocks of 8.

The RA (blinded to the intervention randomization) met mothers after the pediatric visit in a private room adjacent to the clinic, administered a brief demographic survey, delivered the assigned intervention using materials enclosed in a previously sealed, opaque envelope, and then left the mothers in the room alone to complete a 3 question post-visit survey on their intention to contact in the future any resource to discuss the symptoms in the screen. Two days later, the RA contacted mothers by telephone to complete the intervention (MOM) or administer a survey (control). Telephone follow-up to assess outcomes was attempted at 2 weeks and 8 weeks by a second RA blinded to group allocation. We allowed up to 6 attempts to contact participants, provided them with call back numbers to reach us at their convenience for all calls, and provided a \$10 thank you gift for each contact (\$40 total possible). To assess fidelity, the principal investigator observed a 10% subset of RA interactions via a two-way mirror for the clinical interventions and face-to-face with the RA during telephone calls. There were no noted deviations from the scripts.

INTERVENTIONS

Motivating Our Mothers Intervention—We created the MOM intervention protocol based on prior literature in pediatric-based maternal depression studies^{11,14,15,20,24}; motivational interviewing techniques in programs for alcohol cessation²⁵; maternal depression treatment adherence interventions^{26,27}; and obstetric-based maternal depression screening^{10,15}; as well as our clinical experience. The first component was office-based and consisted of a pamphlet and an accompanying structured verbal motivational interaction lasting 5 minutes. The pamphlet contained depression education, including differentiating between screening and diagnosis, and messages meant to motivate mothers to seek further assessment for depression and possible care. All education and motivational messages (both written statements and images) were targeted to mothers and interspersed amongst listings of free, accessible parenting and depression care resources. The targeting focused on destigmatizing depression and included: 1) relating care for depressive symptoms to maintaining child health; 2) using terms such as “low mood” and “maternal depression” rather than depression alone; 3) stating that symptoms are common in mothers; and 4) including parenting resources along with mental health resources. The interaction included repeating the same messages in a discussion style while going over the pamphlet. The second component was a 15-minute semi-structured telephone interaction delivered 2 days later as a motivational “booster.”

Control Intervention—We designed the control as an active control, still providing depression education and advice, including distinguishing between positive screens and a diagnosis of clinically significant depression. However, we did not include in the control those aspects of the MOM which we consider novel and which would not be delivered routinely in adult primary care settings. The control consisted of a pamphlet and accompanying script. One side of the pamphlet was the JAMA Depression Patient Page (2010).²⁸ The other side contained the same care resources provided in the MOM, presented as a list with explanatory headings rather than being interspersed among motivational messages. The control script replaced any terms related to the participants’ role as a mother (e.g. “clinical depression” for “maternal depression”), removed any references to child health (e.g. “your well-being” for “the well-being of yourself and your child”), and was

presented without questions meant to stimulate discussion. Control mothers received a telephone survey without additional motivational component at 2 days.

OUTCOMES AND MEASURES

Outcomes—We designed the MOM to motivate depression screen-positive mothers in pediatric settings to seek further assessment and possible care for depression and hypothesized that its greatest impact would occur within days to weeks of the initial contact. Therefore, our *primary outcome* was the proportion of mothers in each group who reported trying to contact any resource to discuss “feeling down, depressed, hopeless or having little interest or pleasure in doing things” (the symptoms in the 2-question screen) at 2 weeks after enrollment. *Secondary outcomes* included: 1) intention to contact any resource measured immediately after the office-based intervention; 2) the types of depression care resources mothers tried to contact (as reported at 2 weeks); 3) intention to contact any resource in the future (among mothers who had not made an actual attempt to contact any resource to discuss the symptoms in the screen at 2 weeks; and 4) the proportion of mothers in each group who reported trying to contact any resource to discuss the symptoms in the screen by 8 weeks. We assessed outcomes at 8 weeks to capture any participants who needed more time to attempt to seek further assessment for depression and possible care.

Measures—We used standard or adapted instruments to assess outcomes. To facilitate clinic workflow and minimize refusals due to excessive time requirements, we decided to use the available time with participants to deliver the interventions and minimally collect data. At enrollment participants were asked only to provide their age, children’s ages, and if they were currently taking any medications for mood or depression (all of which were part of eligibility screening). Immediately after the intervention, mothers completed a written 3 item measure of intention to contact any resource to discuss the symptoms in the depression screen (Box 1), adapted from Azjen²⁹ and other depression studies.³⁰ An overall mean score across the three items was determined, with higher scores indicating stronger intention (Cronbach’s $\alpha = 0.9815$). At 2 days via telephone, all mothers provided information on self-identified race/ethnicity, level of education, employment status, household income, access to the internet, health insurance status, medical and mental health provider access, depression treatment history, and the PHQ-8. The PH-8 omits the question on self-harm contained in the PHQ-9; it has equal validity to the PHQ-9 and is commonly used in telephone studies where adequate follow-up for self-harm disclosure cannot be ensured.^{11,31,32} At 2 and 8 weeks, mothers reported whether or not they had tried to contact each of 6 types of resources (Box 1) to discuss “feeling down, depressed, hopeless or having little interest or pleasure in doing things” since receiving the intervention. The listed resources (medical provider, mental health provider, obstetrician-gynecologist, pediatrician, internet resource, or clergy) have been identified in the literature as those mothers may seek²⁴ and were included in the pamphlets both groups received. If they reported no attempts to contact care resources, they were again asked the intention measure. All mothers were administered the PHQ-8 at 2 and 8 weeks.

STATISTICAL ANALYSIS

We used a X^2 test to compare by group the proportion of mothers who had tried to contact care resources (from any of the 6 resources) or not. Intention scale mean scores were compared between groups via Kruskal-Wallis test and t-test. We used Fischer's exact test to compare the differences in the proportion of participants who tried to contact specific types of resources by group. We used X^2 or Fisher's exact test to compare participant characteristics by group.

RESULTS

PARTICIPANTS

Differences in baseline characteristics between groups were not statistically significant and equal numbers of participants had missing data in each group (Table 1). Overall, the sample was diverse racially/ethnically and socioeconomically. Most mothers were beyond the postpartum period and had access to healthcare. About 10% of mothers reported taking medications for mood; however, none reported seeing a general or mental healthcare professional for a psychiatric condition in the last 12 months.

OUTCOMES

Primary Outcome—Ten MOM and 9 control mothers were not reached by telephone at 2 weeks post-intervention, despite up to 6 attempts to contact them. Of the 42 MOM and 43 control mothers who we were able to reach, the proportion of MOM mothers who reported that they tried to contact any of 6 resources to discuss the symptoms in the depression screen was greater than control mothers (difference 20.3%, 95% CI, -0.1% to -38.5%, Table 2). The number needed to treat (NNT) to avert a single case of “not trying to contact a resource for follow-up” was 4.9 (95% CI, 2.4 – 290). We performed a sensitivity analysis restricted to mothers with baseline PHQ-8 scores of 10 or greater, as these mothers would be more likely to receive a diagnosis of depression and have a symptom burden which may hinder motivation. We found that within this more symptomatic subgroup, MOM mothers were more likely to attempt to contact any resource than controls, but the difference was not significant (75% versus 54.6%, $P = 0.17$). This compares to a more robust difference among mothers with PHQ-8 scores less than or equal to 9 (80% versus 43.8%, $P = 0.066$).

Secondary Outcomes—In the post-visit surveys administered in the office ($n=104$), intention to contact any resource to discuss the symptoms in the depression screen was significantly higher in MOM mothers (mean score 5.22; 95% CI, 4.76–5.68) than control mothers (mean score 4.00; 95% CI, 3.46–4.55) ($P = 0.009$). At 2 weeks post-intervention ($n=85$), many mothers reported attempts to contact more than one type resource to discuss the symptoms in the depression screen. No mothers indicated pursuing any resource other than those included in the survey. In general, MOM mothers were more likely to try to contact mental health providers and less likely to try to contact medical professionals or clergy than control mothers ($P = 0.05$; Table 2). In those mothers who did not report attempts to contact any resource by 2 weeks ($n=31$), MOM mothers reported higher intention to do so in the future (mean score, 4.39; 95% CI, 3.52–5.27) than control mothers (mean score, 2.35; 95% CI, 1.47–3.23) ($P = 0.001$). At 8 weeks post-intervention, we were

able to reach 28 MOM and 29 control mothers. Few mothers (3 MOM and 2 control) who had not tried to contact any resource to discuss the symptoms in the depression screen at 2 weeks reported doing so by 8 weeks. The proportion of MOM mothers who reported that they tried to contact any resource by 8 weeks (89%) was greater than control mothers (59%) ($P = 0.015$). The NNT to avert a single case of “not trying to contact a resource for follow-up” was 3.26 (95% CI, 1.95 – 10.65).

DISCUSSION

In this pilot randomized control trial, we found that mothers receiving the targeted MOM intervention were more likely to try to contact a resource to discuss symptoms in the depression screens than controls. In addition, as ancillary evidence of intervention effect, MOM mothers had greater intention to contact a resource for screen follow-up, whether they actually tried to contact a resource or not, and tended to try to contact traditional mental health sources of care more than controls. Our primary and ancillary findings together suggest that pediatric-specific messages demonstrate promise in motivating mothers with depressive symptoms to seek care for those symptoms. These messages may also reduce stigma associated with seeking care from mental health providers. Our pilot results provide a critical first step in eventually linking maternal depression screening in pediatrics^{9,11,20,24} to effective but underused maternal depression treatment programs¹⁰, thereby maximizing the opportunity presented in pediatric settings to improve care of maternal depression. Given advances in epigenetic science demonstrating the long lasting effects of environmental stress on child health³³, the goal of eventually improving maternal depression is of utmost importance in ensuring the health of generations of pediatric patients.

We identified 4 related studies investigating pediatric-based referrals for depression care in samples of depression screen-positive mothers not exclusively in the postpartum period. In 2 studies, the method of referral was not specified and the proportion of mothers who intended or reported seeking care was 59%²¹ and 46%.³⁴ In two studies, both using the “5 A’s” approach to referral, one did not report uptake of referrals¹⁰ and one found that 90% of parents who agreed to be proactively contacted by central referral telephone line were assisted, while only 5% of parents who were asked to call the line themselves chose to do so.¹¹ Most other studies investigating uptake of referral for maternal depression care from pediatric practices are exclusive to the postpartum period, and have found uptake to be varied and highest for onsite services.^{9,20} Mothers’ uptake of referral to maternal depression care from peri- and postpartum care providers is similarly varied depending on the resource to which they were referred.^{7,35}

In this context, our study has 3 novel aspects. First, it was designed specifically to assess the effect of a pediatric-based intervention on mother’s motivation to contact resources for follow-up of a positive depression screen. Second, the MOM was designed, and our study setting selected, so that our results would strongly encourage further testing and implantation of the MOM in general pediatric practices and for the diverse groups of mothers they serve. Third, we were able to describe mothers’ preferences for depression assessment and care resources after they received a menu of accessible services.

Our study extends prior work^{9–11,20,21,34} by identifying high rates of attempting to contact generally available community-based resources for follow-up of positive depression screens in mothers referred from a general pediatric clinic. Furthermore, MOM mothers' greater attempts at contact compared to control mothers may demonstrate that mothers respond preferentially to depression education and advice targeted specifically to them. Whether the MOM can be delivered by clinic staff (rather than trained research assistants) needs to be explored in future studies. However, our results bolster current evidence for successfully motivating depression screen-positive mothers in pediatric settings to seek further evaluation for their symptoms, and add a way to do so that is practical in the context of general pediatric clinic resources.

In contrast to other studies^{34,35} we found that mothers with depressive symptoms tended to try to contact more than one resource, including combinations of formal services, such as mental and medical providers, and informal services like clergy and the internet. Only one mother reported attempting to contact a pediatrician. We can only speculate about the explanation, but many mothers had been diagnosed with depression in the past and had access to care. Therefore, they may have been aware of resources outside of those that a pediatrician could direct them toward. Lastly, mothers in the MOM group preferred mental health professionals more than would have been expected from preferences reported in previous studies, and more than control mothers. We suspect that our targeting of messages, with a focus on destigmatization of depressive symptoms and presenting further assessment and possible treatment of depression as a means to improve child health, could have led MOM mothers to be more accepting of depression as a cause of their symptoms. Therefore, they were more likely to consider mental health providers as appropriate sources of help.

Our results should be interpreted in light of various study limitations. The sample size was limited. However, this pilot trial was designed as an initial test of the concept of motivating mothers to seek follow-up for depression screens in pediatric settings and of feasibility and initial effectiveness of the MOM in doing so, and not as a means of estimating a definitive effect size for the dichotomized outcome overall or within subgroups. Furthermore, taken as a whole, our results indicate an effect of the MOM on mother's attempts to contact resources to discuss the symptoms expressed in the depression screen despite the small sample size. The individuals who were eligible but refused to participate or who received the interventions but were lost to follow-up despite retention efforts, could be less likely to attempt contact. Generalizability is further limited by the single site design. In addition, because the same team of RAs was used to deliver both the MOM and control interventions, there were opportunities for cross-contamination, particularly inadvertent delivery of MOM elements to control patients. However, investigator observation of a 10% sample of RA interactions revealed no deviations from protocol, and in any case such cross-contamination would tend to bias the observed intervention effect towards the null. The motivational interviewing components of the MOM made interactions between the RA and MOM mothers necessarily longer than those in the control. Differences in length of interaction alone may account for some of the difference in outcome.

In summary, we have demonstrated that mothers within and beyond the postpartum period can be screened for depression in a general pediatric clinic and those with positive screens

can be motivated to seek follow-up for those screens. We have also demonstrated the initial effectiveness of the MOM in increasing these mothers' attempts to contact resources to discuss the symptoms evaluated in the screens. There are significant systematic barriers to maternal depression care utilization.^{1,7,8,14,15} The pediatric setting is not currently the place to address those barriers³⁶, even though it may become so as the nation turns toward organizing family-centered medical homes. Instead, our goal is to realize the potential of pediatric settings in identifying mothers with depression who would otherwise not be identified or treated, including mothers with ongoing symptoms who have lost contact with treating providers, and motivating them to engage, to the extent possible, with effective but underutilized maternal depression evaluation and care programs. This study provides valuable information for others considering pediatric-based interventions with similar aims. Our results encourage larger effectiveness trials both to generate more precise estimates of the intervention's impact and to explore potential areas for intervention improvement and implementation.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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WHAT'S NEW

Treating maternal depression may improve maternal and child well-being. Based on results of this pilot trial, the MOM intervention may be a promising method for pediatricians to screen mothers for depression and motivate them to seek further assessment and support.

Figure 1.
CONSORT Flow Diagram Showing the Progress of Participants in the MOM Pilot Trial.

Table 1

The Characteristics of the Participating Mothers by Randomized Group

	GROUP, No. (% ^a) or Mean (SD)			P Value ^b
	MOM	CONTROL	TOTAL	
COLLECTED AT ENROLLMENT, No. with Available Data	N = 52	N = 52	N = 104	
Mothers Endorsing Both Depression Screening Questions	28 (54)	25 (48)	53 (51)	0.47
Mothers Endorsing One (Either) Depression Screening Question	24 (46)	27 (52)	51 (49)	
Mothers in the Early Postpartum (Any Child < 6 Months) Period	14 (27)	15 (29)	29 (28)	0.73
Mothers in the Late Postpartum (Any Child 6–12 Months) Period	10 (19)	7 (13)	17 (16)	
Mothers Not in the Postpartum (All Children >12 Months) Period	28 (54)	30 (58)	58 (56)	
Mean Age (Years) of Mothers	30.4 (8.1)	31 (6.4)	30.7 (7.3)	0.68
Mean Age (Years) of the Child Receiving Care	3.6 (3.4)	4.1 (3.9)	3.8 (3.7)	0.52
Mean Total Number of Children Parented by Mothers	2.3 (1.3)	2.1 (1.2)	2.2 (1.2)	0.48
COLLECTED AT THE 2 DAY CALL, No. with Available Data	N = 43	N = 43	N = 86	
First Time Mother Met the Pediatrician	13 (30)	20 (47)	33 (38)	0.12
Mean Scale of Child Care Availability ^c	2.6 (1.2)	2.7 (2.4)	2.6 (1.3)	0.71
Mother Living with a Partner	34 (79)	26 (60)	60 (70)	0.06
Has Internet Access	39 (91)	34 (79)	73 (85)	0.23
Has Any Kind of Health Insurance	38 (88)	39 (91)	77 (89)	1.00
Has a Primary Care or Mental Health Professional	30 (70)	34 (79)	64 (74)	0.46
Race/Ethnicity of Mothers				
Non-Hispanic, White	13 (30)	10 (23)	23 (27)	0.75
Non-Hispanic, Black	9 (21)	8 (19)	17 (20)	
Non-Hispanic, Other	9 (21)	9 (21)	18 (21)	
Hispanic, Any Race	12 (28)	16 (37)	28 (32)	
Level of Education of Mothers				
Partial and Completed High School	20 (47)	14 (32)	34 (39)	0.69
Partial College and Above	23 (53)	29 (68)	52 (60)	
Employment of Mothers				
Employed Outside of the Home	17 (39)	13 (30)	30 (35)	0.84
Out of Work, Homemaker, or Student	26 (61)	30 (70)	56 (65)	
Yearly Household Income in Dollars	N = 41	N = 42	N = 83	
<10,000	14 (34)	15 (35)	29 (35)	0.31
10,000 – 34,999	17 (42)	18 (43)	25 (42)	
35,000 – >100,000	10 (24)	9 (22)	19 (23)	
Mothers' History of Depression	N = 43	N = 43	N = 86	
Has Ever Been Told They Have Depression by a Professional	21 (49)	24 (56)	45 (52)	0.52
Were Mothers When Told They Had Depression	16 (37)	17 (40)	33 (38)	0.75
Mothers' Depression Symptoms	N = 42	N = 43	N = 85	

	GROUP, No. (% ^a) or Mean (SD)			P Value ^b
	MOM	CONTROL	TOTAL	
COLLECTED AT ENROLLMENT, No. with Available Data	N = 52	N = 52	N = 104	
Mean PHQ 8 Scores ^d	10.4 (5.5)	11.1 (5.7)	10.8 (5.5)	0.54
PHQ 8 Score 0–4	6 (14)	7 (16)	13 (15)	0.82
PHQ 8 Score 5–9	12 (29)	11 (26)	23 (27)	
PHQ 8 Score 10–14	15 (35)	12 (28)	27 (32)	
PHQ 8 Score 15–19	5 (12)	9 (21)	14 (17)	
PHQ 8 Score 20–24	4 (10)	4 (9)	8 (9)	

^a All percentages are rounded up to the nearest whole integer

^b Test were by X2 or Fisher's exact tests depending on the cell size and two-tailed t-test for means

^c Scale: 1 all of the time, 2 most of the time, 3 some of the time, 4 a little of the time, 5 none of the time

^d Scale: summative Score with range 0–24

Table 2

Number of Mothers Reporting Attempts to Contact Resources for Follow-Up of Positive Depression Screens by Group and Measured at Two Weeks Post-Intervention

RESOURCES OF CARE FOR DEPRESSIVE SYMPTOMS No. with Available Data	GROUP			
	MOM (N=42)		Control (N=43)	
	N	% of Total ^a (95% Confidence Interval)	N	% of Total ^a (95% Confidence Interval)
Any Resource	31	74 (61–87)	23	53 (39–68)
Mental Health Professional ^b (with or without other resources)	14	33 (19–48)	5	11 (2–21)
Medical Provider ^c (with or without other resources)	6	14 (4–25)	9	21 (9–33)
Clergy ^d (with or without other resources)	4	10 (1–18)	6	14 (4–24)
Internet Site only	7	17 (5–28)	3	7 (0–15)

^a Percentages rounded to nearest whole number

^b Mental Health Professional = “Therapist, Counselor, Psychologist, Psychiatrist, or Social Worker”

^c Medical Provider = “Doctor, Nurse Practitioner, Physician Assistant, or Obstetrician/Gynecologist”

^d Clergy = “Pastor, Priest, Rabbi, Imam or Spiritual Counselor”

p = 0.052 for X² test comparing any attempts versus no attempts to seek resources for care between intervention and control (the primary outcome).

p = 0.05 for Fisher’s exact test comparing the distribution of attempts to seek care between intervention and control.