The Development and Pilot of a Technology-Based Intervention in the United States for Father’s Mental Health in the Perinatal Period

Jaime Hamil, MPH\textsuperscript{1} \textsuperscript{D}, Emma Gier, MPH\textsuperscript{1}, Craig F. Garfield, MD, MAPP\textsuperscript{2}, and Darius Tandon, PhD\textsuperscript{1}

Abstract
Paternal mental health is increasingly recognized as an important public health issue, with about 10% of men experiencing depression perinatally. Paternal depression is associated with less responsive parenting, greater parenting stress, and suboptimal child development. In response to a lack of existing interventions that directly focus on fathers’ mental health in the United States, we developed and pilot tested the Fathers and Babies (FAB) intervention for use with partners of women enrolled in home visiting (HV) programs.

After a review of the extant literature, FAB was developed with input from HV stakeholders and infant mental health consultants. FAB was subsequently pilot tested with 30 father-mother dyads, with mixed-method data collected from a subset of intervention participants to assess intervention feasibility and acceptability and guide intervention refinement.

Five themes related to FAB content and delivery considerations emerged from the initial focus groups that were used to guide FAB development. Mixed-method data collected during the pilot study established that fathers receiving FAB reported its content appropriate and thought it was feasible to receive the intervention. Several recommendations for FAB revisions were also provided.

FAB is an innovative intervention developed for fathers from contemporary family structures that was well-received during its pilot testing. Feasibility and acceptability data suggest that fathers have favorable opinions about intervention content and delivery, while also highlighting areas for future revisions of FAB.

Keywords
paternal mental health, home visiting, public health, intervention, technology

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Depression among fathers (“paternal depression”) has been reported to have a prevalence of 10% during the perinatal period, with the highest rates occurring three to 6 months postpartum (Habib, 2012; Paulson & Bazemore, 2010)—twice the rate of depression among men in the general public who are not of parenting age (Habib, 2012; Hasin et al., 2005). Postpartum depression in fathers disproportionately affects low-income men across racial and ethnic groups, and it has been hypothesized that men of racial and ethnic minorities experience a higher prevalence of depression (Bernal & Sáez-Santiago, 2006). Mental health services are underutilized among racial and ethnic minorities; these disparities may be due to a number of reasons, including experiences of racism and discrimination, mental health stigma, lack of knowledge about treatment options, cultural mistrust of healthcare providers or misdiagnosis and clinical biases. Men are thought

\textsuperscript{1}Northwestern University Feinberg School of Medicine, Chicago, IL, USA
\textsuperscript{2}Northwestern University Feinberg School of Medicine, Lurie Children’s Hospital of Chicago, Chicago, IL, USA

Corresponding Author:
Jaime Hamil, MPH, Northwestern University Feinberg School of Medicine, 750 N Lake Shore Drive, Chicago, IL 60611, USA.
Email: Jaime.hamil@northwestern.edu

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to be deterred from seeking out mental health care due to societal norms surrounding masculinity. Traits of traditional masculinity include independence, strength, and stoicism. Additionally, men have a greater tendency to self-medicate with drugs or alcohol. (Hankerson et al., 2015; Sagar-Ouriaghli et al., 2019). Men across all races and ethnicities are less likely to seek out mental health care than women and depression manifests itself differently in men than women—such as irritability or aggressive behaviors—so it is not always detected via commonly used depression screening tools (Call & Shafer, 2018; Scholz et al., 2016). As a result, women in the United States are 1.6 times more likely to receive mental health services than men (Sagar-Ouriaghli et al., 2019). Expectant and new fathers experience significant changes in life after childbirth—many ecological factors may exacerbate the stress that comes along with becoming a new parent. Some are unique to fathers including feeling excluded from mother-infant bonding (Kim & Swain, 2007). Additionally, preliminary research suggests that fathers demonstrate low rates of help-seeking behaviors, particularly when dealing with parental stress, depression, and anxiety (Isacco et al., 2016). It is important to consider the intersectionality and compounding nature of these factors when considering the limited use of mental health services among fathers from racial and ethnic minority groups.

There is increasing evidence of the negative consequences associated with paternal depression for fathers and their children. A meta-analysis by Cheung et al. (2019) demonstrated that paternal depression is associated with both mother and father rating poor interparental relationship quality (Cheung et al., 2019). Paternal depression is associated with insecurity in the relationship, feelings of rejection, and perceived hostility from the partner, which increase the risk for poor relationship quality (Bronte-Tinkew et al., 2009; Cheung & Theule, 2019; Du Rocher Schudlich et al., 2019; Shelton & Harold, 2008). Evidence consistently shows that paternal depression is associated with negative parenting behaviors such as corporal punishment, less engagement in educational activities, and more father-child conflict (Cheung & Theule, 2019; Davis et al., 2011; Kane & Garber, 2004). Paternal depression has also been shown to have a deleterious effect on child internalizing and externalizing behaviors independent of maternal depression (Ramchandani et al., 2008; Weinfield et al., 2009), and has been associated with increased rates of psychiatric disorders among children as well as increased social challenges. It is posited that a father’s antisocial behaviors when depressed may contribute to a disruption in or lack of socialization of their children (Ramchandani et al., 2008).

Despite the prevalence of paternal depression and its negative sequelae for both father and child, few existing interventions have attempted to address paternal mental health during the perinatal period. While there is robust work surrounding father engagement in parenting, particularly internationally, this is typically not inclusive of paternal mental health, and there have been even fewer studies conducted among men of racial and ethnic minorities, or in the United States. For example, O’Brien et al.’s review of 13 studies—only two of which were in the United States—demonstrates a focus on supporting partner (mother’s) mental health, re-envisioning perinatal mental health as a “family concern,” or the exploration of treatment options (O’Brien et al., 2017). These are not directly focused on the father, but rather the family or partner.

A review of 19 interventions conducted in the United States for men in the perinatal period reported that these interventions focused on general childbirth education and infant care, co-parenting skills, or case management (Lee et al., 2018). Of these interventions, only four (Diemer, 1997; Feinberg & Kan, 2008; Field et al., 2008; Salman-Engin et al., 2017) examined mental health outcomes, with just one (Field et al., 2008)—a massage-based intervention—yielding reductions in paternal depressive symptoms. Internationally, there has been extensive research on interventions for fathers, but there is a gap in research and evidence around father’s mental health in the United States (Fletcher et al., 2018; O’Brien et al., 2017; Rominov et al., 2016). A systematic review of 11 interventions for paternal mental health in the perinatal period reported on six that were conducted in the United States (Rominov et al., 2016). Of the studies done in the United States, one was psychoeducational, two used massage techniques, three were couples-based, and none used CBT or text-messaging approaches (Rominov et al., 2016). Additionally, these previous intervention studies were limited by low enrollment of racial and ethnic minority men and a lack of inclusion of fathers from contemporary family structures such as non-biological partners or biological non-resident fathers.

Lastly, some existing father-focused mental health interventions inclusive of technology-based approaches have been developed outside of the United States (Fletcher et al., 2018, 2019). Building from the evidence and findings of these existing interventions, within the U.S. context, a text-messaging approach has the potential to reach larger numbers of fathers more efficiently and scale more rapidly (Baldwin & Bick, 2017; Fletcher et al., 2018; May & Fletcher, 2019; O’Brien et al., 2017; Rominov et al., 2016). Given that pregnant and postpartum women and infants typically have access to standardized healthcare and services, fathers are rarely the focus of direct services, making technology-based interventions a clear fit to meet their needs.

Home visiting (HV) programs serve vulnerable families, and aim to improve birth outcomes, maternal life
course, parenting knowledge and skills, and to foster healthy child development through the delivery of in-home services by a trained home visitor. Home visitation occurs throughout all 50 states, with an estimated 750,000 families receiving HV services (Avellar et al., 2016; Sama-Miller, 2017). Many HV models exist, with a 2017 report highlighting 20 evidence-based models that have shown favorable impacts on one or more maternal and child health outcomes using rigorous research designs (Sama-Miller, 2017). HV programs provide services throughout the perinatal period and up to ages 3–5, in preparation for children’s school readiness (Sama-Miller, 2017). Over the last decade, we have worked closely with HV programs across the United States to address maternal depression among pregnant women and mothers that they serve through the implementation of the Mothers and Babies (MB) intervention. MB has been determined to be efficacious in preventing the onset of postpartum depression and reducing depressive symptoms via multiple randomized controlled trials, (Tandon et al., 2011, 2014; S. D. Tandon et al., 2018) and was highlighted by the United States Preventive Services Task Force as one of the two most effective interventions for prevention of postpartum depression (Curry et al., 2019; Siu et al., 2016). MB is guided by principles of cognitive-behavioral therapy (CBT) and attachment theory, and has been designed to be highly adaptable among different participant populations. In recent years, there has been a significant increase in the attention HV programs have given to fathers’ needs (Sandstrom et al., 2015; Sandstrom & Lauderback, 2019; The Child & Family Research Partnership, 2014; The Child and Family Research Partnership, 2013).

In response to the gaps in existing interventions for fathers and to better address paternal depression, there is growing emphasis at the local, state, and national levels on engaging both parents through home visiting (Sandstrom et al., 2015; Sandstrom & Lauderback, 2019; The Child & Family Research Partnership, 2014; The Child and Family Research Partnership, 2013). Additionally, we have identified the need for father-focused intervention through regular consultation efforts with HV programs throughout the United States. The evolution of innovative technological approaches to efficient care delivery has allowed us to develop Fathers and Babies (FAB), a manualized intervention guided by the same cognitive behavioral therapy and attachment principles that undergird MB. FAB was designed to mirror the flexibility to be integrated into HV and adaptability to meet diverse families’ needs. The dual goals of FAB are to improve paternal mental health and to help fathers support their partner’s mental health. Like MB, each session connects the core elements of CBT to child development, behaviors, and relationships. FAB was initially developed to be delivered in conjunction with the MB intervention, incorporates technology-based intervention delivery, and intervenes with fathers regardless of marital or cohabitating status. This manuscript describes the process of FAB development, presents feasibility and acceptability findings from an uncontrolled pilot study, and outlines revisions being made to FAB based on pilot study findings. A separate manuscript reporting on mental health, parenting, and interparental relationship has been published in the Frontiers Journal of Health Psychology (Tandon et al., 2021).

Methods

Overview

Initial development of FAB occurred between 2016 and 2018 in collaboration with key community stakeholders conducted through advisory meetings, interviews and focus groups. These stakeholders included (1) infant mental health consultants, (2) fatherhood experts, (3) academics, (4) home visitors, (5) fathers and mothers, which offered a wide range of expertise and perspective. Subsequently, FAB was pilot tested to assess the intervention’s feasibility and acceptability. During the pilot, mixed methods were employed to collect data that are being used to guide adaptations to FAB content and delivery.

Prior to any study activities, informed consent was obtained from all participants. Online informed consent was captured via Research Electronic Data Capture (REDCap) (Harris, 2009), in-person was documented through a signed consent form, and verbal consent was conducted through verbal agreement (yes or I agree) and documented by study personnel. Participants who consented in person were given a copy of their consent form, and participants who provided consent by phone or online were mailed a copy of their consent form. Participants had the option to opt out of study activities by notifying the study team at any time. The Northwestern University Institutional Review Board approved all study procedures (STU00203918).

FAB Development

As a first step, we consulted with a group of infant mental health consultants with home visiting expertise, as well as fatherhood experts, and reviewed fatherhood literature related to existing mental health interventions for perinatal fathers. These steps, along with our successes with MB, guided the development of the broad contours of the FAB intervention and helped develop focus group guides to obtain additional insights from an array of key stakeholders. We developed a draft version of the FAB
intervention content and worksheets to guide specific focus group topics. The core FAB intervention content is based on the same core components (CBT, Attachment Theory) and modular structure as MB (Jensen et al., 2018; Le et al., 2015; McFarlane et al., 2017; D. Tandon et al., 2018). A study investigator (CG) has extensively studied fathers and health and developed a smartphone app to support parents of very low birth-weight infants as they transition to home from the NICU and findings from this research supported the development of FAB (Garfield, Duncan, et al., 2014; Garfield, Lee, et al., 2014; Kim et al., 2015; D. Tandon et al., 2018).

Three focus groups were conducted during December of 2017, each with a key stakeholder group with insights related to both FAB content and implementation: specifically, (a) home visitors who work with perinatal women and had been trained on and implemented MB, (b) perinatal women enrolled in HV programs, and (c) fathers (partners of perinatal women enrolled in HV programs). Home visitors (n = 11) were recruited from six HV programs in Illinois with whom we had previous relationships. Mothers (perinatal women) (n = 4) and fathers (partners of perinatal women) (n = 4) were recruited from the same HV programs, two of the dyads were first time parents and two had two or more children. All parents were in the postnatal period. The inclusion criteria for home visitors included having received MB training and previous experience implementing MB. Inclusion criteria for perinatal women included being enrolled in HV, previous or current receipt of MB, and having a male partner (father) who was interested in participating in a focus group (regardless of marital status). Both members of the dyad needed to agree to participate in their respective focus group, which were held at the same time and location to minimize travel for study participants.

A study investigator and the Research Manager facilitated each focus group. Childcare and food were provided during the focus groups and participants were compensated with a $35 gift card. The focus groups were conducted in person and averaged 90 min in length. The semi-structured focus group guides asked participants to provide recommendations in four areas: (1) content and skills to support fathers’ mental health, (2) content and skills to help a father support his partner’s mental health, (3) approaches to deliver FAB content to fathers, and (4) alignment of FAB with MB content and delivery. The focus groups were audio recorded and transcribed verbatim.

The Research Manager and a master’s level student independently coded each focus group transcript to identify key concepts and themes related to each of the four areas covered during the focus groups. A deductive and inductive approach to coding was used (Bradley et al., 2007). Data were initially coded using pre-identified themes and new codes were added during coding to capture additional themes. Each transcript was coded manually by one team member and checked by a different team member for quality assurance. Team members met to resolve coding discrepancies through discussion and consensus. Themes were organized in excel for content analysis. Saturation was determined when no new codes or themes were identified in the data. Triangulation across the three focus group’s themes was employed to determine which themes converged to guide the FAB content.

FAB Pilot Study

Participants. An uncontrolled pilot study of FAB was conducted with 30 father-mother dyads. We recruited dyads from nine HV programs between March 2018 and February 2020. These HV programs had been previously trained on MB and had prior experience delivering MB to perinatal women. HV programs participated in a training webinar with study investigators to review FAB implementation, study design and participant recruitment. We received referrals for 37 father-mother dyads in which the HV client was pregnant, or the dyad had a child <12 months old. Additional eligibility requirements included comfort participating in intervention and research activities in English, being ≥18 years old, and dyads were either in a relationship parenting together or not in a relationship and co-parenting together. Marital or cohabitation status was not an eligibility requirement. Among the 37 dyads referred, we enrolled 30 (81%) dyads. Of the seven individuals who did not enroll, four were not interested, and three were unable to be contacted by the study team.

Baseline demographic data were collected from 30 dyads (30 fathers and 30 mothers) at the beginning of the FAB pilot study (Table 1). Mean age for fathers was 27.7 years, while mothers’ mean age was 26.5 years. Fathers and mothers were nearly equally distributed by race/ethnicity (Black, Hispanic, Caucasian). There was some disagreement in selected marital status between mothers and fathers though most were equally distributed between being single, married, or living with a partner. Fewer respondents articulated that they were engaged. At enrollment, 6 dyads were prenatal and 24 were postnatal.

Intervention Delivery. Fathers received the 12-session FAB intervention concurrent with their partner’s receipt of MB. FAB intervention content aligned with the MB content their partner received at the same time and focused on both promoting father’s mental health and helping fathers support their partner’s mental health. The initial FAB session typically lasted 30 min and was delivered in-person during a regularly scheduled home visit with both the mother and the father, or by phone with the
father if he could not attend the in-person visit. Subsequent FAB sessions were delivered: (a) in person, if possible; (b) via text message with embedded links to online content; (c) or a mix of both in-person and text messaging. Mothers received MB sessions in person with their home visitor, with supplemental text messages. A FAB session was “triggered” when the home visitor delivered a MB session to the mother. Specifically, after the mother received her MB session, a home visitor recorded MB session completion in our Healthy SMS platform; this documentation then deployed a series of text messages to both the mother and the father.

HealthySMS (www.healthysms.org) (Aguilera et al., 2017) is a web-based platform designed to deliver health-related text messages. Along with receiving their in-person MB sessions, mothers received three text messages in between sessions that focused on skill reinforcement, personal project reminders, and self-monitoring. Both mothers and fathers received a stipend of five dollars monthly to help offset text messaging costs.

For each FAB text-based intervention session, fathers received three to six text messages over the course of three to seven days, per session, with a total of 51 messages over 12 sessions. Text messages explained key concepts related to mood management, with embedded links in the text messages sharing worksheets and videos with more information about FAB core content and activities to promote practice of CBT skills. For example, the second FAB session focuses on encouraging fathers to engage in pleasant activities to help alleviate stress and improve their mood (Table 2). The videos included in the text messages were selected by study investigators from external sites and focused on core CBT elements. Participants could reply with “Stop” to opt out of receiving the text messages at any time. For fathers who received FAB sessions in person, the material in the worksheets was delivered to the father by the home visitor, concurrent with delivering MB to the mother, using the MB/FAB facilitator guide. Twelve fathers received FAB solely via text (after the initial session), seven fathers received a combination of in person and text-based intervention content, and seven fathers received all sessions in person. The mode of delivery for the remaining four fathers was not reported. FAB session delivery

### Table 1. FAB Pilot Participants: Baseline Demographic Characteristics.

| Baseline characteristics | Fathers (n = 30, %) | Mothers (n = 30, %) |
|--------------------------|--------------------|---------------------|
| Age (mean)               | 27.7               | 26.5                |
| Race (N, %)              |                    |                     |
| Black/African American   | 11 (37)            | 10 (33)             |
| Hispanic/Latino          | 9 (30)             | 9 (30)              |
| Caucasian                | 8 (27)             | 8 (27)              |
| Other                    | 2 (7)              | 3 (10)              |
| Marital status (N, %)    |                    |                     |
| Single                   | 9 (30)             | 10 (33)             |
| Married                  | 9 (30)             | 8 (27)              |
| Living with partner      | 9 (30)             | 7 (23)              |
| Engaged                  | 3 (10)             | 5 (17)              |
| Employment Status (N, %) |                    |                     |
| Not currently working    | 0 (0)              | 18 (60)             |
| Working part-time        | 5 (17)             | 7 (23)              |
| Working full-time        | 25 (83)            | 5 (17)              |
| Educational attainment (N, %) |            |                     |
| High school degree       | 3 (10)             | 3 (10)              |
| High school degree/GED   | 12 (40)            | 6 (20)              |
| Some college or beyond   | 15 (50)            | 21 (70)             |
| Pregnancy status (N, %)  |                    |                     |
| Prenatal                 | 6 (20)             |                     |
| Postpartum               |                    | 24 (80)             |
| Age of child (N, %)      |                    |                     |
| Prenatal                 | 6 (20)             |                     |
| 0–3 months               |                      | 10 (33)             |
| 3–6 months               |                      | 5 (17)              |
| 6–9 months               |                      | 1 (3)               |
| 9–12 months              |                      | 5 (17)              |
| 12–18 months             |                      | 3 (10)              |
Table 2. Example of the FAB Text Messages.

| Skill reinforcement | Personal project reminder | Self-monitoring |
|---------------------|---------------------------|-----------------|
| Session 1:          | Session 3:                | Session 6:      |
| We can do activities, change our thoughts, and seek support to help us manage our stress. FAB will help you manage stress and help you support your partner. Link: Worksheet 1.1 | Pleasant activities can be low cost, brief, and part of our daily routines. You can do Pleasant Activities by yourself, with your partner, and with your baby. Link: https://www.first5california.com/en-us/videos/keeping-kids-physically-active-can-be-simple-and-fun/ | Have you noticed any harmful thoughts you have? Reply Y/N [Also tell us if you used one of the talking back strategies to reduce it.]

Data Collection and Analysis

Quantitative Data. Both fathers and mothers provided informed consent via Research Electronic Data Capture (REDCap) (Harris, 2009) to participate in research activities associated with the pilot study. Fathers and mothers completed three self-report assessments—at baseline, 3-month follow-up, and 6-month follow-up. Survey links were sent via REDCap, or administered via telephone by the Research Manager or MPH intern for participants who did not choose to complete their surveys online. This report focuses on the FAB development and refinement process and presents mixed-methods data from a pilot study focused on the intervention’s feasibility and acceptability. A separate manuscript describes mental health, parenting, and relationship outcomes (Tandon et al., 2021).

Feasibility and Acceptability of FAB. FAB feasibility was defined by home visitor adherence to the MB-TXT protocol which included post-session documentation of participant session data (i.e., date a FAB/MB session was completed, and the triggering of text messages within seven days of completing each in-person MB 1-on-1 session). Additionally, feasibility was assessed through post-intervention surveys for HVs using questions developed by the study investigators (see Tables 5 and 6). Seventeen of thirty enrolled fathers and nineteen of thirty enrolled mothers completed the post-intervention survey. For each acceptability measures criteria of success were considered if the two most positive responses were endorsed at 75% or higher level of agreement (e.g., Strongly Agree or Agree).

Qualitative Data. Using convenience sampling, after 2 months of recruitment and outreach to all fathers who completed the post-intervention survey (n = 17), we recruited eight fathers who completed FAB to participate in key informant semistructured interviews. We conducted these interviews to obtain additional information to assess FAB acceptability and determine areas that required modification before its more widespread testing. The semistructured interview guide was comprised of 21 questions and focused on the following topics: (1) acceptability of the FAB delivery modality and content; (2) satisfaction with FAB; (3) the relationship between FAB and MB and how the interventions affected paternal and maternal health and well-being; (4) additional topics that should be included in FAB; and, (5) methods to best engage fathers in FAB. Interviews were completed by phone and lasted 20–45 min. Of the eight interview participants, four were African American, two were Latino, and two were Caucasian. Six lived in urban areas, while two resided in rural areas. At baseline, three reported being married, two reported living with their partner, and three reported being single. All single fathers were co-parenting with their partners. The fathers represented a mix of delivery modalities (i.e., solely via text, solely in person or a combination of both). All fathers were in the postnatal period. Three were first-time fathers, four had two children and one had three children.

Key informant respondents received $35 compensation. Interviews were audio-recorded and transcribed verbatim and subsequently analyzed using NVivo (Version 2020) (QSR International Pty Ltd, 2020) to identify common themes related to the acceptability and benefits of FAB and to guide FAB revisions. We developed a codebook based on codes derived from the interview guide. This codebook included categories (themes) and
subcategories (subthemes). We applied a deductive and inductive approach to coding (Bradley et al., 2007), with an initial set of codes developed based on our interview guides and additional codes developed during the coding process. Each transcript was coded by one team member and reviewed by a different team member for quality assurance. To resolve coding discrepancies team members met on a weekly basis and discussed to reach consensus. After coding all transcripts, and ensuring agreement across coding, we reviewed queries of all codes in search of overarching themes. Themes were identified through patterns in coded data and were given priority based on prevalence. We reviewed and discussed emerging themes until no new concepts emerged from the data and saturation was reached. Saturation was determined through deductive thematic saturation and was considered to be reached when no new codes or themes were identified within the data (Saunders et al., 2018).

**Results**

**FAB Development: Focus Group Themes**

Table 3 presents the five main themes, and illustrative quotes, that emerged from our analysis of focus groups conducted with home visitors, mothers (female HV

| Theme | Illustrative quotes |
|-------|---------------------|
| Theme 1: Importance of Supporting Father’s Stress Management | I wish I knew a little bit more about stress then before I started having a kid. I just let everything come in as it comes, because this is just life, so stuff is coming at you. You’ve got to accept it as it comes. (Father Focus Group) |
| Theme 2: Fathers Should Also Support their Partner’s Mental Health | Sometimes, it’s hard to even get prepared for things because you never know what’s coming next to do, and I would expect my wife to do it, but of course, she didn’t know either because it was all new to us. So, if I would have been able to have something to help me with the stress and aggravation, that would be great (Father Focus Group) |
| Theme 3: FAB Should Allow for Flexible Delivery | When we first had our kid, there was a program that we went to. . . . we would go there, and they would teach her stuff—post-partum depression and stuff. Maybe if I got information of how the women feel right after the kid is born, it would be a lot easier to understand them. (Father Focus Group) |
| Theme 4: FAB Should Be Available to Couples with Different Relationship Statuses. | I do like the idea of mood for dads and their partners, because yeah, they come home really stressed depending on what they’re going through at work and everything. (Mother Focus Group) |
| Theme 5: FAB and MB Content Should Be Aligned | The curriculum should include understanding mom’s postpartum depression, absolutely. (HV Focus Group) |

Table 3. Main Themes and Illustrative Quotes from FAB Development Focus Groups.

*HV Focus Group* indicates a quote from the home visitors focus group and *Father Focus Group* indicates a quote from the fathers focus group. *Mother Focus Group* indicates a quote from the mothers focus group.
clients), and fathers (their male partners) to help shape the development of FAB.

**Theme 1: Importance of Supporting Father’s Stress Management.** When asked to comment on FAB content that would be important to include in the intervention, stakeholders consistently recommended that FAB provide fathers with both a better understanding of the stressors associated with fatherhood and specific skills to help manage their stress. They also suggested that FAB’s stress management tools would resonate, in particular, with first-time fathers who were now being asked to balance work, fatherhood and home life. Additionally, home visitors, mothers, and fathers suggested that FAB should not only support fathers in managing their own stress and mental health, but also support their partners’ stress management.

**Theme 2: Fathers Should Also Support Their Partner's Mental Health.** Across focus groups, there was a recommendation that fathers should receive more information on maternal postpartum depression. Specifically, there were recommendations to help fathers understand the thoughts and feelings of their partner as a catalyst for them to provide support that their partner needs.

**Theme 3: FAB Should Allow for Flexible Delivery.** Scheduling with fathers was one of the major barriers identified by home visitors especially when delivering MB and FAB in tandem. As such, home visitors suggested FAB delivery should be flexible. In particular, it was recommended that if a father could not meet in person, he could receive FAB through a series of text messages. Home visitors also mentioned that many families do not have access to computers—therefore, a text-message based intervention would be more accessible for fathers. Fathers agreed with flexible delivery options of either in person, text, or a mix of in person and text.

**Theme 4: FAB Should Be Available to Couples with Different Relationship Statuses.** Home visitors, fathers and mothers all emphasized that it was important that FAB and MB be offered regardless of parental relationship or cohabitation status, in recognition that only a portion of women enrolled in HV will be part of a traditional cohabitating relationship with their baby’s biological father.

**Theme 5: FAB and MB Content Should Be Aligned.** Focus group respondents felt that FAB should align with MB in terms of content and theoretical basis (e.g., attachment theory, cognitive behavioral therapy). Home visitors suggested that the way to accomplish this would be to create a parallel FAB curriculum that is father-focused, while MB is mother-focused. The content of FAB and MB would then be delivered in parallel so that fathers and mothers would receive the same type of content at the same time.

**Operationalizing Focus Group Findings to Develop the FAB intervention**

Based on triangulation of data collected via focus groups, literature review, and conversations with fatherhood experts, FAB was designed to be delivered concurrently with MB so fathers and mothers would receive similar stress management and parenting content at the same time. The study team manualized FAB into a facilitator guide and participant workbook that aligned with the MB intervention and core CBT elements. The focus group findings guided the creation of father-centric stress management skills, including mood tracking, behavioral activation, mood regulation, social support, father-baby attachment, and partner support. Worksheets similar to the MB worksheets were developed to conceptualize the findings from the focus groups, literature, and key stakeholders. Concurrent MB and FAB delivery was expected to promote fathers’ ability to support his partner, since fathers would receive content on how to support his partner’s use of core MB skills that she had just received. To accommodate fathers’ schedules, FAB was developed to be flexible in delivery, allowing for either in-person delivery or delivery via text messages with embedded content. We also developed FAB to be delivered to fathers regardless of relationship status or family make up. For example, this intervention can be delivered to a father if he is the biological father or not, the primary caregiver, or in a co-parenting relationship with his partner. The idea is that it is accessible to all father figures. Focus group data also helped guide specific content identified in FAB. Table 4 provides an overview of key differences and additional content in FAB, broken out by each intervention module.

**FAB Pilot Study: Feasibility and Acceptability**

Fifteen (50%) out of thirty enrolled fathers received all twelve sessions. The remaining 15 fathers received anywhere from one to eight sessions, with an average of 7 sessions. The sessions were a mix of text, in-person, or both in person and text message. Three of these fathers still completed all research activities despite not receiving all 12 intervention sessions. Five fathers dropped out of the study all together due to complete withdrawal from HV, one father was incarcerated, and the remaining six fathers were lost to follow up (See Figure 1).

Thirty fathers who enrolled in the study, 80% (24/30) and 57% (17/30) completed 3- and 6-month follow-up assessments. For mothers enrolled in the study, 90%
Table 4. Overview of MB and FAB Content, By Intervention Module.

| Intervention module | Goals of MB content | FAB: Key differences and additional content |
|----------------------|----------------------|-------------------------------------------|
| Introduction         | • Relationship between stress and mood  
                      • How stress affects mother-baby relationship  
                      • Purpose and overview of MB  
                      • Importance of noticing one’s mood and its triggers  
                      • Introduction to Quick Mood Scale | • How stress affects father-baby relationship and the relationship with your partner  
                      • Purpose and overview of FAB |
| Pleasant activities  | • Relationship between pleasant activities and mood  
                      • Brainstorm pleasant activities to do alone, w/adults, and w/children  
                      • Overcoming obstacles to mothers doing pleasant activities | • Overcoming obstacles to fathers doing pleasant activities  
                      • Strategies to support mother’s engagement in pleasant activities |
| Thoughts             | • Relationship between thoughts and mood  
                      • Helpful and harmful thoughts about being a mother  
                      • Ways to change harmful thought patterns  
                      • Goals for my future and my baby’s future | • Helpful and harmful thoughts about being a father  
                      • Helpful and harmful thoughts your partner has about being a mother  
                      • Goals for my future, my baby’s future, and ways to support my partners’ goals |
| Contact with others  | • Relationship between mood and contact with others  
                      • Identify supportive people in one’s life and the ways they provide support to me and my child  
                      • Communication styles to help get needs met  
                      • Role changes and how they can increase need for social support | • Identify supportive people for me, my child, and my partner  
                      • Role changes in becoming a father  
                      • Role changes and how they increase need for social support in both mothers and fathers |

Figure 1. Pilot Participant Flow.
(27/30) and 77% (23/30) completed 3- and 6-month follow-up assessments (see Figure 1). Seventeen of thirty enrolled fathers and nineteen of thirty enrolled mothers completed the post-intervention survey. Of these 17 fathers, 12 (71%) completed all twelve sessions. The other five fathers completed between four and

| Survey questions & response options | Fathers % agreement (n = 17) | Mothers % agreement (n = 19) |
|------------------------------------|-----------------------------|-----------------------------|
| **Acceptability**                  |                             |                             |
| How useful were the text messages? |                             |                             |
| Very useful                        | 41% (7)                     |                             |
| Useful                             | 35% (6)                     |                             |
| Somewhat useful                    | 24% (4)                     |                             |
| How helpful were the information and skills in the worksheets, videos, and resources? | | |
| Very helpful                       | 53% (9)                     |                             |
| Helpful                            | 47% (8)                     |                             |
| How well did you understand the information and directions from the text messages? | | |
| Totally understood                | 59% (10)                    |                             |
| Understood                         | 35% (6)                     |                             |
| How well did you understand the information and skills in the worksheets, videos, and resources? | | |
| Totally understood                | 56% (9)                     |                             |
| Understood                         | 38% (6)                     |                             |
| How much did you enjoy the information in the texts? | | |
| Very enjoyable                     | 24% (4)                     |                             |
| Enjoyable                          | 47% (8)                     |                             |
| Somewhat enjoyable                 | 29% (5)                     |                             |
| FAB helped me be a better father   |                             |                             |
| Strongly agree                     | 29% (5)                     |                             |
| Agree                              | 59% (10)                    |                             |
| FAB gave me skills to help better manage mood and stress | | |
| Strongly agree                     | 35% (6)                     |                             |
| Agree                              | 53% (9)                     |                             |
| How likely are you to recommend FAB to other men? | | |
| Extremely likely                   | 58% (10)                    |                             |
| Likely                             | 41% (7)                     |                             |
| FAB helped me and my partner talk about stress, parenting, and our relationship | | |
| Strongly agree                     | 50% (8)                     | 32% (6)                     |
| Agree                              | 38% (6)                     | 47% (9)                     |
| The FAB program improved support I receive from my partner | | |
| Strongly agree                     |                             | 21% (4)                     |
| Agree                              |                             | 53% (10)                    |
| Neither agree nor disagree         |                             | 21% (4)                     |
| If in the future if I had to choose how to receive the program, I would choose: | | |
| Only MB                            | 11% (2)                     |                             |
| MB with FAB                        | 84% (16)                    |                             |
| Only FAB for my partner            | 5% (1)                      |                             |
| Not receive any program            | 0% (0)                      |                             |
| How likely are you to recommend MB with FAB to other women and families? | | |
| Extremely likely                   |                             | 47% (9)                     |
| Likely                             |                             | 53% (10)                    |
eight sessions. At baseline, seven (41%) reported being married, five (29%) reported being single, four (24%) reported living with their partner, and one (6%) reported being engaged. Race was evenly distributed across Black, Hispanic and Caucasian with one father identifying as Asian American and one as bi-racial. At least one partner across twenty dyads provided responses on this post-intervention survey. There were two instances in which only mom responded, and one instance in which only dad responded. Both partners completed the survey in the remaining dyads. This section only reports on the responses related to feasibility and acceptability.

Thirteen fathers (76%) reported the FAB text messages were “useful” or “very useful” and all fathers reported the information and skills in FAB worksheets, videos, and resources to be “helpful” or “very helpful” (100%). Sixteen (94%) of fathers stated they “understood” or “totally understood” the information and directions in the text messages, and 15 (88%) “understood” or “totally understood” the information and skills in the FAB worksheets, videos and resources. Twelve (71%) fathers identified the information in text messages to be “enjoyable” or “very enjoyable” (see Table 5).

When asked about the FAB skills, 15 (88%) fathers “agreed” or “strongly agreed” that the program helped them to become a better father and with similar numbers (88%) stating that they “agreed” or “strongly agreed” that FAB gave them skills to help manage their mood and stress (see Table 4). Fourteen (82%) of fathers “agreed” or “strongly agreed” that FAB helped them and their partner talk about stress, parenting, and their relationship with their baby’s mother. All 17 fathers said they would be “likely” or “extremely likely” to recommend FAB to other fathers (100%) (see Table 5).

Nineteen of 30 enrolled mothers completed the web-based post-intervention survey. Fifteen (79%) mothers “agreed” or ‘strongly agreed’ that FAB helped her and her partner talk about stress, parenting, and their relationship. Additionally, sixteen (84%) mothers stated that if they had the opportunity to choose how the program was delivered (i.e., MB as a standalone course or MB with FAB), they would want to receive MB with FAB. Additionally, all (100%) of the mothers who completed the post-intervention survey were “likely” or

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**Table 6. Home Visitor Post Intervention Survey Responses.**

| Survey questions & response options | Home visitors % agreement, \((n = 13)\) |
|-------------------------------------|-------------------------------------|
| **Acceptability** Overall, I feel that fathers and babies (FAB) ENCOURAGED my clients to discuss stress and parenting with their partners | |
| Strongly agree | 39% (5) |
| Agree | 46% (6) |
| I felt COMFORTABLE delivering FAB in addition to mothers & babies | |
| Strongly agree | 54% (7) |
| Agree | 31% (4) |
| How likely are you to RECOMMEND FAB to your female clients who have partners? | |
| Extremely likely | 46% (6) |
| Likely | 54% (7) |
| I felt that the HealthySMS platform was user-friendly. | |
| Strongly agree | 39% (5) |
| Agree | 39% (5) |
| How likely are you to RECOMMEND FAB to other home visitors? | |
| Extremely likely | 15% (2) |
| Likely | 85% (11) |
| **Feasibility** I LIKED the flexibility of being able to deliver FAB either through text or in person sessions | |
| Strongly agree | 62% (8) |
| Agree | 31% (4) |
| FAB was FEASIBLE to implement | |
| Strongly agree | 38% (5) |
| Agree | 62% (8) |
| I felt that I was well-prepared to use the HealthySMS platform after training | |
| Strongly agree | 31% (4) |
| Agree | 54% (7) |
Six fathers described improvements in communication and coping skills. Fathers discussed the positive impact the FAB skills had on their relationship with their partner and/or children. Five fathers mentioned that FAB provided tools not only to manage personal stress, but also how to model positive stress management for their children (see Table 5).

Key Informant Interview Themes

A number of different themes emerged from the eight key informant interviews conducted with fathers who participated in FAB. The interview guide included questions related to acceptability and feasibility. Fathers spoke about both the benefits of FAB and recommendations for improving or refining FAB (see Tables 7 and 8, respectively, for illustrative quotes on key themes within each of these areas).

Benefits of FAB

Stress management & coping. All fathers interviewed described the value of the FAB tools for stress management and coping skills. Fathers discussed the positive impact the FAB skills had on their relationship with their partner and/or children. Five fathers mentioned that FAB provided tools not only to manage personal stress, but also how to model positive stress management for their children (see Table 5).

Parent relationship & communication/partner support. Six fathers described improvements in communication with their partner and improved partner support. Fathers indicated they had the enhanced ability to talk about stress with their partner; as well as conversations about increased engagement with a baby or child, and increased empathy toward their partners and baby or child. Fathers also referenced working together to navigate into new roles as parents.

Parenting. All fathers described a new prioritization of engaging with their child. This included spending more time with their child, focusing on their child’s development, and working toward being a “good co-parent” or partner for their baby’s well-being.

Changed perspective. All fathers described a change in their perspective surrounding fatherhood, masculinity, mental health, or parenting. For example, one father explained that it changed his ideas surrounding masculinity and mental health. He now believes that it is acceptable and beneficial to have conversations about stress and stress management.

Fits into fathers’ lives. All fathers described benefits of the accessibility, convenience and flexibility in the delivery of FAB. Seven fathers referenced the convenience of the text messages given their busy schedules, and more specifically, the convenience of text messages while raising a child. Two fathers mentioned that they liked that they could learn independently and at their own pace due to the flexibility in delivery. However, all fathers agreed that having the first session via phone or in person was important.

Peer support & father engagement. Five fathers discussed the benefits of having a father-focused program that allowed for peer support and the prioritization of fathers. Two fathers mentioned the perceived benefits of challenging social norms and masculinity, while promoting father engagement.

Recommendations for improving FAB. Despite an overwhelming positive response from fathers who participated in the key informant interviews, they also offered several helpful recommendations for future refinements and modifications to the FAB program (See Table 8).

Delivery. While fathers were generally happy with FAB’s flexible delivery, there was a desire for more in person or phone contact, as appropriate, given their schedules. When asked about other delivery modalities, more physical resources (e.g., book, packet, worksheets, and videos) and email were mentioned for longer bodies of text. The idea of a “welcome kit” was recommended by one father, in which a box containing all of the necessary
### Table 7. Themes of FAB's Benefits.

| Theme                        | Illustrative quote(s)                                                                                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stress Management & Coping   | *So, for me as somebody who you’d be considering like—I’m characterized as like I do “manly” things. My occupational background, the way I was raised and everything. So, for her it was a lot of trying to get me to understand that just blocking off everything wasn’t helpful, so actually trying to figure out what your emotions were, what’s causing you stress? A lot of the conversations were her using the worksheets to try to show me like, “Oh the reason why you reacted like this is because of this.” So, the emotional part of it was what she used the worksheets, like when we use them together it was very helpful. (FAB Participant)* |
| Partner Relationship & Communication / Partner Support | *Now, I know how to take a second and breathe and actually like, okay, if I know I’m mad or if I’m frustrated the kids are gonna feel that. So, I just always take a minute and calm down before dealing with the kids because if I don’t then we are all just gonna be frustrated and nothing’s gonna get done. So that’s the biggest impact I’ve had at being in this program because I feel like that’s really important. Because every time someone in the house is frustrated the kids are frustrated and it’s not good for neither one of us. (FAB Participant)* |
| Parenting                    | *Yeah, there’s sometimes you find the stress getting to her faster than it can to me. I’ll watch the kids sometimes for her and let her go out by herself whenever I can, or go spend some time with one of her friends, and just try to let her regenerate. You know what I’m saying? You know what I mean? (FAB Participant)* |
| Changed Perspective          | *There’s a father’s, women’s, and baby program that helps out with parenting. You know, information regarding your children development, and how to be a good co-parent and a person. And definitely, if you take it serious, you actually can get something out of it. And it change your paradigm if you want. (FAB Participant)* |
| Flexibility in Delivery      | *I liked the text messages because my wife actually got to see her home visitor every week. It was a little bit harder for me to make it to those appointments, but like seeing it coming in through text message was a lot more easier for me because that way with my job, it was really hard for me to be home sometimes at a specific time. And so then, that way, it would be the acceptability of to be able to do Fathers to Babies while still working. (FAB Participant)* |
| Peer Support & Father Engagement | *I feel like it gives you some—I feel like it's designed for help, you know what I mean? And, I feel as a father, generally, your look is you need to man up and just go ahead and handle it. But I feel like that it gives me a feeling that like, “Oh, this stuff is hard and that there is help that you can get, and that it's not going to be easy.” And, I feel like it was great to let you know that you're supposed to be following resources and then somebody that we depend on. But we struggle too, you know? (FAB Participant)* |

materials and resources that a father would need before beginning the program would be sent to him.

**Content.** Overall, fathers reported the amount of content to be appropriate. Three fathers desired more content. A variety of topics were mentioned for this additional content, including additional resources surrounding co-parenting, how to apply the FAB skills to different child developmental stages, and more mental health resources including access to therapy and counseling. One father desired further age specification as he felt that the examples were more general in nature and the situation may change based on the child’s age. Further, fathers desired more interactive content such as videos or games, and specifically content that he could use to engage his child.

**Engagement with other fathers.** Four fathers desired engagement with other fathers in the program. This could be developed in different ways including a Facebook group for current and past participants or a FAB alumni
Table 8. Themes of Recommendations for Improving FAB.

| Theme                          | Representative quote(s)                                                                                                                                                                                                 |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Delivery                      | Like I said, having more of a person-to-person communication. More like a feel like that you’re talking to people. I think it was just because I was doing it through text messages. That’s why I wasn’t, you know, feeling . . . I was just kind of feeling that I was talking to robots for a short time. But, I just feel more person-to-person contact would help. Like I said, it helps sometimes talking it out too. So, yeah, I just recommend more like phone calls and, you know, trying to reach out to people, you know, taking in mind their schedule. (FAB Participant) Yeah, I think that the main suggestions that I was upon earlier just personally are valid. More physical information maybe would want them to utilize it more and maybe engage people a little bit more. Because I feel something that I can write stuff down instead of typing. But there was—The packet was good with the home visitor. (FAB Participant) |
| Content                       | I feel like it was great frequency and everything. Just I guess if you need more help you always want more stuff, right? (FAB Participant) Like, when you have a newborn, you know, it usually spends most of its time sleeping compared to either a toddler, which is awake. And, some of the questions that they ask you, like, “How much time do you spend playing with your baby?” But, having a newborn, you know, it slept that day and they just woke up to like feed and probably bathe and stuff like that. I think it should be specific of the child’s age regarding the parent. So, maybe take in mind that the age of the child, of the person that’s being interviewed. (FAB Participant) Yeah, little videos and like little game puzzles and stuff, maybe, you know, along with the papers. (FAB Participant) |
| Engagement with Other Fathers | But I’m hoping that one day ya’ll could get just to a place where it could be once a month or once every 6 months or once a year that fathers could just get together, share their experience to you, their ideas, what they have learned and what they did different so that—because everyone not the same. (FAB Participant) |

Discussion

This manuscript describes the development and initial testing of a technology-based intervention, FAB, for fathers in the United States during the perinatal period aimed at improving both fathers’ mental health and providing strategies for fathers to support their partners’ mental health. FAB’s focus on improving fathers’ mental health is innovative, as prior interventions for fathers in the United States in the perinatal period have largely focused on increasing fathers’ knowledge about childbirth and child development and promoting co-parenting. No studies in Lee et al.’s (2018) review of interventions for fathers in the perinatal period directly focused on mental health. Our pilot study of FAB enrolled predominately racial and ethnic minority dyads and enrolled non-biological fathers or biological non-resident fathers. Prior studies, in contrast, were limited in their enrollment of racial and ethnic minority participants and typically excluded men who were not biological resident fathers. By enrolling racial and ethnic minority fathers from contemporary family structures, FAB, therefore, has the potential to be generalizable to a larger community of fathers. Additionally, given the challenges men of racial and ethnic minorities face in seeking mental health care, FAB has the potential to provide mental health care to those who may otherwise be without.

One major barrier in fathering interventions is identifying delivery modalities that fit into the reality of a father’s life that balances work, school, fatherhood, and home responsibilities (Fletcher et al., 2006, 2018). Coupled with the fact that during pregnancy and baby’s first year, fathers are rarely the designated patient or client in health and home visiting services, interventions for fathers need to be designed for non-traditional delivery in order to reach and impact them. By providing the option to receive intervention content asynchronously via text messages with embedded links to intervention material, FAB minimizes the need for in-person visits, allowing fathers to access intervention content at a time and location of the father’s choosing. Further, in the midst of the COVID-19 pandemic, flexibility in delivery modalities is of paramount importance. Additionally, as fathers are less likely to seek out help from a mental health professional due to numerous factors such as gender norms, mistrust of clinical settings, and parental stress, FAB allows fathers to receive mental health content and care in a less intrusive manner. Dads do not necessarily have to directly engage in conversation with a service provider, or mental health clinician, unless they choose in-person delivery, which may further facilitate perceived accessibility and acceptability of care. Future work will need to better understand the times and situations during which fathers
access FAB content. Future intervention trials examining FAB’s implementation could also consider prompting fathers to access FAB materials after experiencing a stressful situation or if they notice their mood is deviating from their norm.

Feasibility testing of programs designed to serve fathers in the perinatal period, such as FAB, need to account for lower research response rates and the decreases in service uptake among fathers (Reichman et al., 2001; Salvesen von Essen et al., 2021) in comparison to mothers. That said, it is also important to note that father’s engagement in this pilot study, depended on that of their partner. For example, if mom dropped out of home visiting services, dad was not able to continue with FAB. As FAB is revised, unique inclusion of fathers is perhaps a first step toward addressing this. One large study found that fathers themselves state that their reason for not participating in research is because they have not been asked to participate (Davison et al., 2017). Non-residential fathers in particular suggested social service programs as worthwhile recruitment venues. Therefore, as FAB is further tested and scaled, it will be important to offer the intervention as a stand-alone for single or co-parenting fathers, and regardless of mom’s intentions of participating in MB. Taking each of these factors into consideration, our preliminary findings suggest that despite a drop off in participation, FAB is feasible and appropriate to both HV programs delivering the intervention and fathers receiving it.

Father engagement has been increasingly acknowledged as an important focus for HV in the last decade, with a growing set of promising practices emerging (Sandstrom & Lauderback, 2019). Many of these practices were incorporated in developing and pilot testing FAB, including father-centric recruitment strategies, flexible scheduling practices, and tailoring content specific to fathers’ needs and experiences (Fletcher et al., 2018). The MB intervention is increasingly being replicated nationally in HV programs (Le et al., 2015), thereby providing an opportunity to scale FAB to a national network of HV programs. In fact, many HV programs using MB have expressed interest in FAB and its potential to engage and improve health and well-being for both parents, along with benefits for child development.

There are several limitations associated with this work. While we conducted focus groups with home visitors, HV clients, and their partners to help guide FAB’s development, only one focus group was conducted with each stakeholder type. Additional focus groups may have yielded additional guidance on issues related to FAB delivery or its content. It is likely that fathers who chose to enroll in FAB were more interested in parenting and fatherhood, which may lead to bias or inherent differences among pilot study participants compared to fathers who declined study participation. More than half of study participants who completed the FAB intervention responded to our 6-month follow-up survey, but it is possible that those who did not respond may have had less favorable views of the intervention’s feasibility, acceptability, and usefulness. Our study was largely qualitative and exploratory in nature, and therefore, we did not test hypotheses. Additionally, our analysis relied on the recollection and perceptions of the participants the study team interviewed. Therefore, both recall bias and social desirability could have played a role in our findings. Recall bias speaks to participants not remembering past events accurately or omitting details. Social desirability is another type of bias in which respondents provide answers in a manner that allow them to be viewed in a positive light. Given that we, the investigators, conducted the interviews, it is possible that the fathers provided favorable answers to please the study team.

Based on the results from the pilot study “Examining the Effectiveness of the Fathers and Babies Intervention: A Pilot Study” (Tandon et al., 2021), and the findings presented in this manuscript, FAB modifications and refinement will be focused on the following areas: (1) creating more video content that aligns with core FAB content, (2) tailoring content to model FAB skills across child developmental phases, (3) tailoring FAB language to reflect various types of relationships between fathers and mothers (or their partners), and (4) developing a welcome packet for fathers. Additionally, we will align FAB with our current MB intervention which includes: refinement to 9 sessions for more rapid delivery, inclusion of mindfulness practices for stress reduction, manual redesign including facilitation tips and updated text-messages. In keeping with a collaborative approach that we have undertaken throughout our FAB work, we plan to work with fathers from different cultural backgrounds to serve as consultants throughout the iterative process of our FAB revisions.

A growing number of public programs, including HV, are renewing their focus on the importance of fathers and how to best engage fathers during their transition to fatherhood. Therefore, FAB is likely to be highly appealing as it is connected with an existing evidence-based intervention for mothers (i.e., MB), pragmatic in its approach by offering in-person and asynchronous text-based content, and available for use with couples beyond traditional heterogeneous cohabitating couples. These preliminary findings align with findings in the literature related to the need for father-centered interventions for mental health (Fletcher et al., 2018; O’Brien et al., 2017). While these pilot data support the feasibility and acceptability of FAB by fathers, mothers, and home visitors, additional research on this intervention in similar and different populations, ideally using an experimental
study design and longer-term follow-up data collection period is needed. Future work should continue to explore the feasibility of implementing FAB and MB together as well as a free-standing intervention separate from its concurrent delivery with MB, which may allow for greater implementation of FAB across health and human service settings. There remains a significant gap of evidence based mental health interventions for fathers that are flexible, father-centric, and address perinatal mental health which is inclusive of the whole family (Fletcher et al., 2011, 2014; O’Brien et al., 2017; Reupert & Maybery, 2011; Rominov et al., 2016).

At the root of our FAB work is the notion that the human services sector needs tools, interventions, and programs to provide additional supports for fathers—specifically related to mental health—to ensure that they are on the path to live healthy, economically stable, and self-determined lives. Given the limited focus of prior interventions on addressing paternal mental health, FAB has the potential to fill this need by providing fathers with information and skills that can help offset the stress associated with parenting a new child. Thus, we believe FAB has the potential to robustly impact paternal mental health, as well as the health and well-being of the partners and children of fathers who receive FAB.

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Ethical Statement

All procedures followed were in accordance with the ethical standards of the of Northwestern University’s Institutional Review Board. Informed consent was obtained from all participants included in the study.

ORCID iD

Jaime Hamil https://orcid.org/0000-0001-8953-1833

References

Aguilera, A., Bruehlman-Senecal, E., Demasi, O., & Avila, P. (2017). Automated text messaging as an adjunct to cognitive behavioral therapy for depression: A clinical trial. Journal of Medical Internet Research, 19(5), e148.

Avellar, S., Paulsell, D., Sama-Miller, E., Grosso, P. D., Akers, L., & Kleinman, R. (2016). Home visiting evidence of effectiveness review: Executive summary. https://homvee.acf.hhs.gov/HomVEE-Executive-Summary-2016_Compliant.pdf

Baldwin, S., & Bick, D. (2017). First-time fathers’ needs and experiences of transition to fatherhood in relation to their mental health and wellbeing: A qualitative systematic review protocol. JBI Database Systematic Reviews and Implementation Reports, 15(3), 647–656. https://doi.org/10.11124/jbisrir-2016-003031

Bernal, G., & Sáez-Santiago, E. (2006). Culturally centered psychosocial interventions [Article]. Journal of Community Psychology, 34(2), 121–132. https://doi.org/10.1002/jcop.20096

Bradley, E. H., Curry, L. A., & Devers, K. J. (2007). Qualitative data analysis for health services research: Developing taxonomy, themes, and theory. Health Services Research, 42(4), 1758–1772. https://doi.org/10.1111/j.1475-6773.2006.00684.x

Bronte-Tinkew, J., Scott, M. E., Horowitz, A., & Lilja, E. (2009). Pregnancy intentions during the transition to parenthood and links to coparenting for first-time fathers of infants. Parenting, 9(1-2), 1. https://doi.org/doi.org/10.1080/15295190802656729

Call, J. B., & Shafer, K. (2018). Gendered manifestations of depression and help seeking among men. American Journal of Men’s Health, 12(1), 41–51. https://doi.org/10.1177/1557988315623993

Cheung, K., & Theule, J. (2019). Paternal depressive symptoms and parenting behaviors: An updated meta-analysis. Journal of Child And Family Studies, 28(3), 613.

Cheung, K., Theule, J., Hiebert-Murphy, D., & Pietrowski, C. (2019). Paternal depressive symptoms and marital quality: A meta-analysis of cross-sectional studies. Journal of Family Theory & Review, 11(3), 449.

Curry, S. J., Crist, A. H., Owens, D. K., Barry, M. J., Caughey, A. B., Davidson, K. W., Doubeni, C. A., Epling, J. W., Jr, G. D. C., Kemper, A. R., Kubik, M., Landefeld, C. S., Mangione, C. M., Silverstein, M., Simon, M. A., Tseng, C. W., & Wong, J. B. (2019). Interventions to prevent perinatal depression: US preventive services task force recommendation statement. JAMA, 321(6), 580–587. https://doi.org/10.1001/jama.2019.0007

Davis, R. N., Davis, M. M., Freed, G. L., & Clark, S. J. (2011). Fathers’ depression related to positive and negative parenting behaviors with 1-year-old children. Pediatrics, 127(4), 612–618. https://doi.org/10.1542/peds.2010-1779

Davison, K. K., Charles, J. N., Khandpur, N., & Nelson, T. J. (2017). Fathers’ perceived reasons for their underrepresentation in child health research and strategies to increase their involvement. Maternal and Child Health Journal, 21(2), 267–274. https://doi.org/10.1007/s10895-016-2157-z

Diemer, G. A. (1997). Expectant fathers: Influence of perinatal education on stress, coping, and spousal relations. Research In Nursing and Health, 20(4), 281.
Du Rocher Schudlich, T. D., Jessica, N. W., Erwin, S. E. A., & Rishor, A. (2019). Infants’ emotional security: The confluence of parental depression, Interparental conflict, and parenting. *Journal of Applied Developmental Psychology*, 63, 42–53. https://doi.org/https://doi.org/10.1016/j.appdev.2019.05.006

Feinberg, M. E., & Kan, M. L. (2008). Establishing family foundations: Intervention effects on Coparenting, parent/Infant well-being, and parent–child relations. *Journal of Family Psychology*, 22(2), 253.

Field, T., Figueiredo, B., Hernandez-Reif, M., Diego, M., Deeds, O., & Ascencio, A. (2008). Massage therapy reduces pain in pregnant women, alleviates prenatal depression in both parents and improves their relationships. *Journal of Bodywork & Movement Therapies*, 12(2), 146.

Fletcher, R., Dowse, E., Bennett, E., Chan, S., O’Brien, A., & Jones, D. (2014). The paternal perinatal depression initiative. *Australian Nursing and Midwifery Journal*, 22(5), 40. ISSN:2202-7114.

Fletcher, R., Knight, T., Macdonald, J. A., & StGeorge, J. (2019). Process evaluation of text-based support for fathers during the transition to fatherhood (SMS4dads): Mechanisms of impact. *BMC Psychology*, 7(1), 63. https://doi.org/10.1186/s40359-019-0338-4

Fletcher, R., May, C., Attia, J., Garfield, C. F., & Skinner, G. (2018). Text-based program addressing the mental health of soon-to-be and new fathers (SMS4dads): Protocol for a randomized controlled trial. *JMIR Research Protocol*, 7(2), e37. https://doi.org/10.2196/resprot.8368

Fletcher, R. J., Feeman, E., Garfield, C., & Vimpani, G. (2011). The effects of early paternal depression on children’s development. *The Medical Journal of Australia*, 195(11–12), 685–689.

Fletcher, R. J., Matthey, S., & Marley, C. G. (2006). Addressing depression and anxiety among new fathers. *The Medical Journal of Australia*, 185(8), 461–463. https://doi.org/10.5694/j.1326-5377.2006.tb00650.x

Garfield, C. F., Duncan, G., Rutsohn, J., McDade, T. W., Adam, E. K., Coley, R. L., & Chase-Lansdale, P. L. (2014). A longitudinal study of paternal mental health during transition to fatherhood as young adults. *Pediatrics*, 133(5), 836–843. https://doi.org/10.1542/peds.2013-3262

Garfield, C. F., Lee, Y., & Kim, H. N. (2014). Paternal and maternal concerns for their very low-birth-weight infants transitioning from the NICU to home. *The Journal Perinatal and Neonatal Nursing*, 28(4), 305–312. https://doi.org/10.1097/ijn.0b013e3182a00021

Habib, C. (2012). Paternal perinatal depression: An overview and suggestions towards an intervention model. *Journal of Family Studies*, 18(1), 4–16. https://doi.org/10.5172/jfs.2012.18.1.4

Hankerson, S. H., Suite, D., & Bailey, R. K. (2015). Treatment disparities among African American men with depression: Implications for clinical practice. *Journal of Health Care for the Poor and Underserved*, 26(1), 21–34. https://doi.org/10.1353/hpu.2015.0012

Harris, P. A., Taylor, R., Thiellke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap): A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, 42(2), 377–381.

Hasin, D. S., Goodwin, R. D., Stinson, F. S., & Grant, B. F. (2005). Epidemiology of major depressive disorder: Results from the national epidemiologic survey on alcoholism and related conditions. *JAMA Psychiatry*, 62(10), 1097–1106. https://doi.org/10.1001/archpsyc.62.10.1097%3AJAMAPsychiatry

Isacco, A., Hofschirer, R., & Molloy, S. (2016). An examination of fathers’ mental health help seeking: A brief report. *American Journal of Men’s Health*, 10(6), NP33–NP38. https://doi.org/10.1177/1557988315581395

Jensen, J. K., Ciolino, J. D., Diebold, A., Segovia, M., Degillio, A., Solano-Martinez, J., & Tandon, S. D. (2018). Comparing the effectiveness of clinicians and paraprofessionals to reduce disparities in perinatal depression via the mothers and babies course: Protocol for a cluster-randomized controlled trial. *JMIR Research Protocol*, 7(11), e11624. https://doi.org/10.2196/11624

Kane, P., & Garber, J. (2004). The relations among depression in fathers, children’s psychopathology, and father–child conflict: A meta-analysis. *Clinical Psychology Review*, 24(3), 339.

Kim, H. N., Garfield, C., & Lee, Y. S. (2015). Paternal and maternal information and communication technology usage as their very low birth weight infants transition home from the NICU. *International Journal of Human-Computer Interaction*, 31(1), 44–54.

Kim, P., & Swain, J. E. (2007). Sad dads: Paternal postpartum depression. *Psychiatry (Edgmont (Pa. : Township)),* 4(2), 35–47. https://pubmed.ncbi.nlm.nih.gov/20805898; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2922346/

Le, H. N., Perry, D. F., Mendelson, T., Tandon, S. D., & Munoz, R. F. (2015). Preventing perinatal depression in high risk women: Moving the mothers and babies course from clinical trials to community implementation. *Maternal and Child Health Journal*, 19(10), 2102–2110. https://doi.org/10.1007/s10995-015-1729-7

Le, H. N., Perry, D. F., Mendelson, T., Tandon, S. D., & Muñoz, R. F. (2015). Preventing perinatal depression in high risk women: Moving the mothers and babies course from clinical trials to community implementation. *Matern Child Health Journal*, 19(10), 2102–2110. https://doi.org/10.1007/s10995-015-1729-7

Lee, J. Y., Knauer, H. A., Lee, S. J., MacEachern, M. P., & Garfield, C. F. (2018). Father-inclusive perinatal parent education programs: A systematic review. 142(1), e20180437. https://doi.org/10.1542/peds.2018-0437#Pediatric

May, C. D., & Fletcher, R. (2019). The development and application of a protocol for the writing, assessing, and validating of a corpus of relationship-focused text messages for new and expecting fathers. *Health Informatics Journal*, 25(2), 240–246. https://doi.org/10.1177/146045817704249

McFarlane, E., Burrell, L., Duggan, A., & Tandon, D. (2017). Outcomes of a randomized trial of a cognitive behavioral enhancement to address maternal distress in home visited mothers. *Maternal and Child Health Journal*, 21(3), 475–484. https://doi.org/10.1007/s10995-016-2125-7
O’Brien, A. P., McNeil, K. A., Fletcher, R., Conrad, A., Wilson, A. J., Jones, D., & Chan, S. W. (2017). New fathers’ perinatal depression and anxiety-treatment options: An integrative review. American Journal of Men’s Health, 11(4), 863–876. https://doi.org/10.1177/1557988316669047

Paulson, J. F., & Bazemore, S. D. (2010). Prenatal and postpartum depression in fathers and its association with maternal depression: A meta-analysis. JAMA, 303(19), 1961–1969. https://doi.org/10.1001/jama.2010.605

QSR International Pty Ltd. (2020). NVivo. In (Version Released March 2020) https://www.qsrinternational.com/nvivo

Ramchandani, P. G., Stein, A., Connor, T. G., Heron, J., Murray, L., & Evans, J. (2008). Depression in men in the postnatal period and later child psychopathology: A population cohort study. Journal of the American Academy of Child & Adolescent Psychiatry, 47(4), 390.

Reichman, N. E., Teitler, J. O., Garfinkel, I., & McLanahan, S. (2001). Fragile Families: Sample and design. Children and Youth Services Review, 23(4-5), 303–326. https://EconPapers.repec.org/RePEc:eee:cysrev:v:23:y:2001:i:4-5:p:303-326

Reupert, A., & Maybery, D. (2011). Programmes for parents with a mental illness. Journal of Psychiatry Mental Health Nursing, 18(3), 257–264. https://doi.org/10.1111/j.1365-2850.2010.01660.x

Rominov, H., Pilkington, P. D., Giallo, R., & Whelan, T. A. (2016). A systematic review of interventions targeting paternal mental health in the perinatal period. Infant Mental Health Journal, 37(3), 289–301. https://doi.org/10.1002/imhj.21560

Sagar-Ouriaghli, I., Godfrey, E., Bridge, L., Meade, L., & Brown, J. S. L. (2019). Improving mental health service utilization among men: A systematic review and synthesis of behavior change techniques within interventions targeting help-seeking. American Journal of Men’s Health, 13(3), 1–18.

Salman-Engin, S., Little, T., Gaskin-Butler, V., & McHale, J. P. (2017). A prenatal Coparenting intervention with unmarried father-mother dyads: Fidelity of intervention delivery by male-female community mentor teams. Journal Of Nursing Review, 25(3), 240.

Salvesen von Essen, B., Kortsmitt, K., D’Angelo, D., Warner, L., P, Smith, R., Simon, C., Garfield, C., Hernández Virella, W., & Vargas Bernal, M. (2021). Opportunities to address men’s health during the perinatal period — Puerto Rico, 2017. MMWR Morb Mortal Weekly Report 69, 1638–1641. https://doi.org/http://dx.doi.org/10.15585/mmwr.mm695152a2

Sandstrom, H., Gearing, M., Peters, E. H., Heller, C., Healy, O., & Pratt, E. (2015). Approaches to father engagement and fathers’ experiences in home visiting programs OPRE Report #2015-103. https://www.urban.org/research/publication/approaches-father-engagement-and-fathers-experiences-home-visiting-programs

Sandstrom, H., & Lauderback, E. (2019). Father engagement in home visiting: Benefits, challenges, and promising strategies. J. B. A. Urban Institute. https://www.jbassoc.com/wp-content/uploads/2019/04/Father-Engagement-Home-Visiting.pdf

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. Quality & Quantity, 52(4), 1893–1907. https://doi.org/10.1007/s11135-017-0744-8

Scholz, B., Crab, S., & Wittert, G. A. (2016). “Males don’t Wanna bring anything up to their doctor”: Men’s discourses of depression. Qualitative Health Research, 27(5), 727–737. https://doi.org/10.1177/1049733216640294

Shelton, K. H., & Harold, G. T. (2008). Intergenerational conflict, negative parenting, and children’s adjustment: Bridging links between parents’ depression and children’s psychological distress. Journal of Family Psychology, 22(5), 712.

Siu, A. L., Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., Ebell, M., Garcia, F. A., Gillman, M., Herzstein, J., Kemper, A. R., Krist, A. H., Kurth, A. E., Owens, D. K., Phillips, W. R., Phipps, M. G., & Pignone, M. P. (2016). Screening for depression in adults: US preventive services task force recommendation statement. JAMA, 315(4), 380–387. https://doi.org/10.1001/jama.2015.18392

Tandon, D., Leis, J. A., Ward, E. A., Snyder, H., Mendelson, T., Perry, D. F., Carter, M., Hamil, J., & Le, H.-N. (2018). Adaptation of an evidence-based postpartum depression intervention: Feasibility and acceptability of mothers and babies 1-on-1. BMC Pregnancy and Childbirth, 18(1), 93. https://doi.org/10.1186/s12884-018-1726-0

Tandon, S. D., Hamil, J., Gier, E. E., & Garfield, C. F. (2021). Examining the effectiveness of the fathers and babies intervention: A pilot study [Original Research]. Frontiers in Psychology, 12(2863), 641–652. https://doi.org/10.3389/ fpsyg.2021.668284

Tandon, S. D., Leis, J. A., Mendelson, T., Perry, D. F., & Kemp, K. (2014). Six-month outcomes from a randomized controlled trial to prevent perinatal depression in low-income home visiting clients. Maternal and Child Health Journal, 18(4), 873–881. https://doi.org/10.1007/s10995-013-1313-y

Tandon, S. D., Perry, D. F., Mendelson, T., Kemp, K., & Leis, J. A. (2011). Preventing perinatal depression in low-income home visiting clients: A randomized controlled trial. Journal Consulting and Clinical Psychology, 79, 707–12. https://doi.org/10.1037/a0024895

Tandon, S. D., Ward, E. A., Hamil, J. L., Jimenez, C., & Carter, M. (2018). Perinatal depression prevention through home visitation: A cluster randomized trial of mothers and babies 1-on-1. Journal of Behavioral Medicine. https://doi.org/10.1007/s10865-018-9934-7

The Child & Family Research Partnership. (2014). Increasing father participation in home visiting: Lessons from mothers. https://childandfamilyresearch.utexas.edu/sites/default/files/CFRPBrief_B0010514_MothersAboutFatherParticHV.pdf

The Child and Family Research Partnership. (2013). Involving fathers in home visiting programs: Lessons from the dads. T. C. a. F. R. P. (CFRP). https://childandfamilyresearch.utexas.edu/sites/default/files/CFRPBrief_B0100613_HVLessonsFromDads.pdf

Weinfield, N., Ingerski, L., & Moreau, S. (2009). Maternal and paternal depressive symptoms as predictors of toddler adjustment. Journal Of Child And Family Studies, 18(1), 39. https://galter.northwestern.edu/search/results?engine=primocentral&k=searchterm=springer_jour10.1007%2Fs10826-008-9205-2