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For Whom and for How Long Does the "Be a Mom" Intervention Work? A Secondary Analysis of Data From a Randomized Controlled Trial Exploring the Mid-Term Efficacy and Moderators of Treatment Response

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The data that support the findings of this study are available from the corresponding author, upon reasonable request.
Data transparency statement: The data reported in this manuscript were collected as part of a larger data collection within a four-wave longitudinal study. Findings from the data collection (for baseline and postintervention assessments only) have been previously reported in a separate manuscript, which does not encompass the follow-up assessment. Specifically, the previous manuscript (Carona et al., 2023b) examined mechanisms of change (psychological processes) related to the postintervention outcomes; the current study focuses on sociodemographic and clinical moderators of women's treatment response to the "Be a Mom" intervention from baseline to postintervention, and ascertains the stability of treatment gains from baseline to 4 months postintervention (follow-up).
The authors declare no conflicts of interest.
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This study explored clinical and sociodemographic moderators of treatment response to "Be a Mom", an internet-based cognitive behavioral therapy (iCBT) intervention, from baseline to postintervention, in women at high risk for postpartum depression (PPD). The study also assessed the stability of women's treatment gains from baseline to 4-months postintervention (follow-up). This open-label randomized controlled trial (RCT) involved a sample of 1,053 postpartum Portuguese women identified as being at high risk for PPD (i.e., having a score of 5.5 or higher on the Postpartum Depression Predictors Inventory-Revised); participants were allocated to "Be a Mom" intervention group or a waiting-list control group, and completed self-report measures at baseline, postintervention, and a 4-month follow-up (554 women completed follow-up assessments). Depressive and anxiety symptoms were measured using the Edinburgh Postnatal Depression Scale and the anxiety subscale of the Hospital Anxiety and Depression Scale, and flourishing/positive mental health was assessed with the Mental Health Continuum. Regression models and linear mixed models were used to examine moderators of treatment and the mid-term efficacy of the "Be a Mom" intervention, respectively. The results revealed that treatment completion, higher

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depression scores at baseline, and higher income levels were linked to greater symptom reduction and positive mental health enhancement. Moreover, the efficacy of the "Be a Mom" intervention was supported at the 4-month follow-up. The "Be a Mom" intervention appears to be an effective iCBT tool for reducing psychological distress and enhancing positive mental health in women at risk for PPD, with therapeutic improvements maintained over a 4-month period.

Keywords: Be a Mom; randomized controlled trial (RCT); follow-up; postpartum depression; internet-based cognitive behavior therapy (iCBT); prevention; moderators

PREGNANCY AND CHILDBIRTH are two major events in a woman's life, which can be experiences of joy and prosperity but also of distress induced by sudden and intense changes in her roles and responsibilities (Slomian et al., 2019). Accordingly, pregnancy and the postpartum period are times of heightened vulnerability for the development of mental health problems, particularly depression and anxiety, that can range from mild to severe (Biaggi et al., 2016). Postpartum depression (PPD), often co-occurring with anxiety disorders, is one of the most common and serious complications after childbirth, with long-term and potentially devastating effects on mothers' quality of life, infants' health development, intimate partner relationships, and overall family functioning (Dagher et al., 2021; Slomian et al., 2019). PPD differs from depression unrelated to childbirth in that anxiety symptoms tend to occur more frequently in PPD; also, cases of PPD tend to be more severe than cases of other subtypes of depression (Hendrick et al., 2000). Given that PPD creates a harmful environment for the optimal development of a child, and inflicts an enormous burden on affected women, their family members and society (Yang et al., 2022), early detection and management of clinical depressive and anxiety symptoms during the postnatal period is vital to prevent such damaging effects.

COURSE AND CONSEQUENCES OF PPD: THE CASE FOR PREVENTIVE INTERVENTIONS

PPD is defined as the occurrence of minor or major depressive episodes up to 1 year after giving birth and is estimated to affect one out of every five postpartum women worldwide (Wang et al., 2021). PPD tends to continue for several years, with one-quarter of distressed mothers reporting persistent elevated depressive symptoms at 3 years postpartum (Putnick et al., 2020). In fact, although most women recover from PPD, it becomes chronic in nearly one third of the women diagnosed (Vliegen et al., 2014). Additionally, in agreement with the "scar hypothesis" (O'Grady et al., 2010, p. 950), a PPD episode may cause drastic damage to a woman's personality and self-concept, predisposing her to future mood disturbances.

PPD often goes undetected and untreated, with cumulative and long-lasting negative impacts on women, their partners, and their infants (Wang et al., 2021). Women with a history of PPD report having significantly impaired quality of life, are at increased risk of experiencing depression many years after childbirth and are more likely to suffer from chronic diseases (Abdollahi & Zarghami, 2018; Dagher et al., 2021). Partners of women with PPD may experience major disruptions in their lives, including heightened feelings of fear, despair, helplessness, and anger, which can continue even if the disorder improves over time and often culminate in permanent family conflict, relationship breakup, and loneliness (Atkinson et al., 2021; Ruffell et al., 2019). There is also a well-established link between untreated PPD and long-term impairments in child development, with strong evidence suggesting that the severity and chronicity of PPD symptoms, rather than a diagnosis per se, are related to negative outcomes in children (Brennan et al., 2000). Child developmental outcomes that are associated with PPD include the following: higher levels of excessive crying, colic, sleep problems, and temperamental difficulties during infancy; increased risk for behavioral problems, emotional maladjustment, and poor cognitive functioning during childhood; and higher prevalences of academic underachievement and psychiatric and other medical disorders in adolescence (Netsi et al., 2018). Given that the health of infants and children is closely associated with the health of their mothers, PPD has various direct and indirect effects on the development of a child (e.g., less positive and sensitive engagement of mothers with their infants, more negative mother-child interactions, and lower-quality family environments), which altogether highlight the importance of detecting and treating depression in the postnatal period as early as possible to prevent such damaging consequences (Slomian et al., 2019).

Even in the absence of a clinical diagnosis, nearly half of the women identified as being at high risk for developing PPD (i.e., women reporting cumulative risk factors that predict PPD) present significant mental health impairments, including elevated levels of depressive and anxiety symptoms, and diminished positive mental health

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(Carona et al., 2023a). Nevertheless, although PPD is amenable to treatment and prevention, most women do not seek professional help for their perinatal mental health issues (Patel & Wisner, 2011) and perceive attitudinal (e.g., being afraid of disclosing psychological problems), knowledge (e.g., not knowing what the available therapeutic options are), and structural barriers (e.g., not having time for or not being able to afford treatment) as the most common obstacles to professional help-seeking for PPD symptoms (Fonseca et al., 2015). In this context, the use of web-based intervention programs (e.g., internet-based cognitive behavioral therapy [iCBT]) has become increasingly popular as a means of improving access to prevention and treatment, allowing greater temporal and local independency, anonymity, accessibility, and flexible delivery (Spanhel et al., 2021).

"BE A MOM," A WEB-BASED INTERVENTION TO PREVENT PPD

Grounded in CBT principles applied to the perinatal context, "Be a Mom" is a brief, self-guided, web-based selective/indicated preventive intervention primarily directed at women with a high risk for PPD and/or early-onset PPD symptoms (Fonseca et al., 2018) but also applicable to mental health promotion in low-risk women (Monteiro et al., 2020b). "Be a Mom" is a structured program with a modular approach that encompasses five sequential and interdependent thematic modules on the following topics: motherhood changes and emotional reactions; cognitions, self-criticism and self-compassion; parenting values, social support and assertive communication skills; couple relationship and conflict resolution skills; and PPD alert signs and professional help-seeking. The content of each module includes psychoeducational information combined with practical exercises and endorses the structured and goal-oriented nature of CBT sessions. The "Be a Mom" intervention essentially targets the enhancement of core self-regulatory skills, such as emotion regulation, coping tendencies, problem solving, psychological flexibility, and self-compassion (Fonseca et al., 2018; Fonseca et al., 2019).

The results from a pilot randomized controlled trial (RCT) suggested that the "Be a Mom" intervention was effective in reducing early-onset postpartum depressive and anxiety symptoms in the intervention group compared with a waiting-list control group and in possibly preventing the establishment of a clinical diagnosis of PPD among high-risk women (Fonseca et al., 2020). This symptom reduction was found to be related to a decrease in emotion regulation difficulties and an increase in self-compassion levels (Fonseca et al., 2019). Subsequently, a full RCT with women at high risk for PPD gathered compelling evidence for the effectiveness of the "Be a Mom" intervention in reducing postnatal depressive and anxiety symptoms in the intervention group in comparison to a waiting-list control group, where such changes were nonexistent or much smaller. When exploring the mechanisms of the treatment response, this full RCT showed that emotion regulation ability and psychological flexibility improved only in the intervention group, and improvements in self-compassion were nearly five times less in the control group (Carona et al., 2023b).

Bearing in mind that psychological distress and positive mental health are related but distinct constructs (Keyes, 2005) and that interventions that are successful at reducing psychopathology are not necessarily effective in improving positive mental health (Newnham et al., 2010; Trompetter et al., 2017), it is worth noting that the "Be a Mom" intervention appears to be effective not only in symptom reduction but also in positive mental health promotion. Preliminary evidence revealed that a higher proportion of low-risk postpartum women in the "Be a Mom" intervention group had an improvement trajectory (i.e., from "not flourishing" to "flourishing") in comparison to women in the waiting-list control group; likewise, a higher proportion of women in the control group had a deterioration trajectory (i.e., from "flourishing" to "not flourishing") in comparison to women in the intervention group (Monteiro et al., 2020b). These findings were further investigated in a subsequent study, where low-risk postpartum women in the intervention group reported greater improvement in self-compassion, together with improvements in positive mental health, than their counterparts in the control group (Monteiro et al., 2021).

THE CURRENT STUDY

Given that interventions to prevent PPD seem to be most effective when they target at-risk women (Werner et al., 2015), the RCT underlying this study included a sample of women at high risk for PPD (i.e., women reporting cumulative risk factors, such as prenatal anxiety, low social support, and past depressive episodes). In addition to the analysis of treatment efficacy and related mechanisms of change (for previous efficacy analyses of the "Be a Mom" intervention, see Carona et al., 2023b), the examination of moderators can identify on whom and under what circumstances treatments may have different effects

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(Kraemer et al., 2002). In contemporary CBT, the identification of moderators of treatment effects is as important as the collection of evidence of intervention benefits because they reveal when specific interventions work best for different populations or subgroups (Hofmann & Hayes, 2019). Although some authors have argued that different e-mental health programs may be more beneficial for specific age groups (Donker et al., 2013), evidence regarding moderators of treatment response to internet-based interventions is scarce, with some reports suggesting that a higher level of education and higher initial depressive symptom severity tend to be associated with greater intervention effects (Karyotaki et al., 2021; Reins et al., 2021; Webb et al., 2017).

The current study sought to explore sociodemographic (i.e., age, parity, educational level, income level, and residence location) and clinical (i.e., psychosocial risk score, baseline score, and previous psychiatric history) predictors and moderators of women's treatment responses to the "Be a Mom" intervention from baseline to postintervention. In addition, the study examined differences in change scores between women who completed the "Be a Mom" intervention (i.e., completing all modules, or all but one module of the individual program) and those who did not complete the "Be a Mom" intervention. Finally, this study aimed to investigate the stability of women's treatment gains from baseline to 4 months postintervention (follow-up).

Methods

SAMPLING AND PROCEDURE

This was a two-arm, open-label RCT to assess the efficacy of the "Be a Mom" intervention in comparison to a waiting-list control group receiving standard care, among women at high risk for PPD. The trial was registered at clinicaltrials.gov (NCT03024645). The study was approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra. The CONSORT 2010 checklist (Schulz et al., 2010) with the eHealth extension (Eysenbach & CONSORT-EHEALTH Group, 2011) was used for study reports. Participants were enrolled in the study if they met the following criteria: (a) were an adult woman (≥18 years old) in the early postpartum period (up to 3 months postpartum); (b) were at high risk for PPD (a score of 5.5 or higher on the Postpartum Depression Predictors Inventory-Revised [PDPI-R]; Alves et al., 2018); (c) had a computer/tablet/smartphone and internet access; (d) had the ability to read and speak Portuguese; and (e) were residing in Portugal. Exclusion criteria were the presence of a serious medical condition (physical or psychiatric) in the mother or infant (self-reported information). Women who did not meet eligibility criteria were informed through email and were advised to seek professional help, if needed.

Recruitment occurred online between January 2019 and January 2021 through both unpaid cross-posting and paid advertisements on social media networks (Facebook and Instagram). Paid advertisements/campaigns targeted women aged 18–45 years old with interests in maternity topics, with the following tagline: "Have you had a baby in the last three months? We want to know if the 'Be a Mom' intervention is effective in promoting mental health in postpartum women, and you can help us! To know if you are eligible to participate in the study, fill out the following form and we will contact you." Before getting access to the eligibility form (including a set of questions to evaluate eligibility criteria and obtain contact information), women were given information about the study goals and procedures (including information on voluntary participation and data protection issues), the participants' and researchers' roles were clarified, and women were asked to provide informed consent to participate in the study (by clicking the option "I understand and accept the conditions of the study").

Eligible women who consented to participate in the study completed the baseline assessment (T1) using the online survey platform LimeSurvey. Subsequently, eligible participants were randomly assigned to the intervention group ("Be a Mom" intervention) or to the control group (waiting-list group receiving regular care) using a computerized random number generator (allocation rate: 1:1). One of the researchers was responsible for randomization, while the other two researchers were responsible for the enrollment of participants and their assignment to groups. Participants were informed about their assigned group through email (no blinding to the assigned group). Postintervention (T2) and follow-up (T3) assessments were also performed online (through LimeSurvey) in both the intervention and control groups (T2: shortly after the intervention; T3: 4 months after the intervention). To reduce attrition, weekly reminders (email and text messages on an alternate basis) were sent to women who failed to complete the baseline, postintervention, and follow-up assessments for 1 month.

INTERVENTION AND CONTROL ARMS

Women assigned to the intervention arm were invited by email to register on a password-

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protected website where the "Be a Mom" intervention was available (beamom.pt; access to the program was restricted to invitation). Approximately 2 weeks after registration, participants were contacted via telephone by the research team to assess whether there were any difficulties in accessing the website and to clarify any questions regarding the program's course and settings. After registration, women received access to the five modules (the "Couple's Relationship" module is only presented to women in a relationship) and were instructed that they should complete one module per week following the module's order, although a slower pace was allowed. Each module had an approximate length of 45 minutes. Women were given the option of pausing the module and resuming the last page visited during subsequent access. Email reminders were sent automatically to the participants if 3, 7, and 13 days had passed without accessing the module in progress. Asynchronous communication channels were provided for program-related support only. Access to the program was free of cost, and no compensation was given to participants. Participants assigned to the control group were offered no intervention but had free access to usual care (as for all participants). At the end of the study, they were offered access to the "Be a Mom" intervention.

MEASURES

Sociodemographic and Clinical Information

A self-report questionnaire was used to collect information relating to maternal sociodemographic (e.g., age, marital status, number of children, employment status, educational level, household monthly income level and residence location) and clinical data (e.g., risk score) and infant data (e.g., infant age and sex).

Postpartum Depression Risk

The PDPI-R (postnatal version; Alves et al., 2018; Beck, 2002) is a 39-item self-report instrument devised to identify PPD risk factors (e.g., life stress, social support, prenatal anxiety) using a dichotomous scale with Yes/No answers (except for the first two questions, regarding marital and socioeconomic status). The total score of the PDPI-R ranges from 0 to 39, with higher scores indicating an increased risk for PPD. The European Portuguese postnatal version of the PDPI-R has demonstrated good psychometric properties. The results of the Portuguese validation study revealed that a cutoff score equal to or higher than 5.5 was indicative of a high risk for PPD. Specifically, when using the EPDS > 9 cutoff score, the analyses yielded a sensitivity of 76.8% and a specificity of 73.0% with a cutoff score of 5.5 (Alves et al., 2018).

Depressive Symptoms

The Edinburgh Postnatal Depression Scale (EPDS; Areias et al., 1996; Cox et al., 1987) was developed to assess the occurrence and severity of postpartum depressive symptoms. The EPDS is a 10-item self-report scale that measures maternal feelings (e.g., depressed mood, anhedonia, guilt, anxiety) during the past 7 days. Each item is scored on a 4-point Likert scale (from 0 to 3) with a total score ranging from 0 to 30. Higher scores indicate higher levels of depressive symptoms. In Portuguese validation studies, a score of 10 or higher was indicative of clinically significant depressive symptoms (Figueiredo, 1997). In the current study, Cronbach's alpha values of the EPDS ranged from .80 (T3 follow-up, control group) to .85 (T3 follow-up, intervention group).

Anxiety Symptoms

The anxiety subscale of the Hospital Anxiety and Depression Scale (HADS-A; Pais-Ribeiro et al., 2007; Zigmond & Snaith, 1983) is a self-report measure that assesses the presence of anxiety symptoms in the previous week (e.g., "I get a sudden feeling of panic"). The HADS-A comprises 7 items, answered on a 4-point Likert scale (from 0 to 3). The total score ranges from 0 to 21, with a higher score reflecting higher levels of anxiety. A predefined cutoff score of 11 or higher is indicative of clinical anxiety. In this study, Cronbach's alpha values ranged between .81 (T1 baseline, intervention group) and .87 (T3 follow-up, control group).

Positive Mental Health

The *Mental Health Continuum Short Form* (MHC-SF; Keyes et al., 2008; Monteiro et al., 2020a) is a 14-item self-report instrument used to assess positive mental health in the past month, and encompasses three dimensions of well-being: emotional (positive affect/satisfaction with life); psychological (purpose in life, positive relationships with others, self-acceptance, autonomy, personal growth, and environmental mastery); and social (social acceptance, social contribution, social coherence, social actualization, and social integration). All items (e.g., "In the last month, how often did you feel confident to think or express your own ideas and opinions?") are answered on a 6-point Likert scale (0 = *never* to 5 = *every day*). The MHC-SF can be scored continuously (ranging from 0 to 70, with higher scores indicating a higher level of positive mental health) or categorically (flourishing, moderately mentally

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healthy, or languishing). In the latter case, a classification of flourishing implies a score of 4 or 5 on at least one item of the emotional well-being subscale, in combination with a score of 4 or 5 on at least six items of the psychological and social well-being subscales. Languishing, on the other hand, is classified as a score of 0 or 1 on at least one item of the emotional well-being subscale and at least six items of the psychological and social well-being subscales. Accordingly, individuals who did not fit these criteria were classified as moderately mentally healthy. The Portuguese MHC-SF psychometric study supported the use of the MHC-SF total score. In this study, Cronbach's alpha values for the overall score ranged between .93 (T1 Baseline, intervention and control groups) and .95 (T3 follow-up, intervention and control groups).

DATA ANALYSIS

Statistical analyses were conducted using the Statistical Package for the Social Sciences (IBM SPSS, version 22.0; IBM SPSS, Chicago, IL). Given the high number of missing data in eHealth studies that discourage imputation and considering that this study included both postintervention and 4-month follow-up assessments, analyses were conducted using a modified intention-to-treat approach that included all randomized participants who had at least one postbaseline measurement for the primary outcome (Abraha & Montedori, 2010).

Descriptive statistics were used to characterize recruitment and retention data over time. In the primary data analysis of this RCT (Carona et al., 2023b), missing endpoints ranged from 32.4% (EPDS) to 40.2% ("Self-Compassion Scale"), and analysis of the pattern of missingness suggested that the data were missing completely at random (Little's MCAR test $X^2 = 9.74$, $p = .780$). Likewise, missing endpoints at the 4-month follow-up ranged from 158/554 (22.2%) on the EPDS to 168/554 (30.3%) on the MHC-SF (Little's MCAR test $X^2 = 3.34$, $p = .342$), suggesting that the data were missing completely at random, despite participants being more likely to answer all questions on the EPDS (the first formal measure to be completed by the participants) than on other measures. Comparison tests (Student's t tests or chi-square tests) were used to compare the intervention and control groups in terms of sociodemographic characteristics and to compare women who completed at least one postbaseline assessment and those who dropped out of the study.

To examine moderators of treatment response considering both the primary (depressive symptoms) and secondary outcomes (anxiety symptoms and positive mental health), a differential change score between baseline and postintervention for each outcome was computed (differential change score for depressive symptoms = EPDS baseline score − EPDS postintervention score; differential change score for anxiety symptoms = HADS baseline score − HADS postintervention score; differential change score for positive mental health = MHC-SF baseline score − MHC-SF postintervention score). A higher change score was indicative of a higher decrease in depression and anxiety symptoms over time and of a lower increase in positive mental health over time. To identify the sociodemographic and clinical variables that may be associated with the treatment response (outcome change scores), Pearson bivariate and point-biserial correlations were computed separately for the intervention and control groups. Correlation coefficients were interpreted according to the following parameters: $r \leq .29$ (weak), $.30 < r < .49$ (moderate) and $r \geq .50$ (strong) (Cohen, 1988). Three regression models were computed, to examine main and interaction effects (as a function of "Group") considering the outcome change scores as dependent variables. The sociodemographic and clinical variables that significantly correlated with the change scores, the Group, and the interaction between such variables and the Group were introduced as predictors in the model. Before the moderation analyses were conducted, continuous independent variables were mean centered for product calculation (Aiken & West, 1991). Effect sizes were based on the R^2 values for the model and interpreted as small ($R^2 \geq .02$), medium ($R^2 \geq .13$) or large ($R^2 \geq .26$) (Cohen, 1992). Finally, comparison tests (Student's t tests) were performed to examine differences in change scores between women who completed the "Be a Mom" intervention (defined as completing at least four or three modules of the program, depending on whether they were involved in an intimate relationship) and women who did not complete the intervention.

To examine the mid-term efficacy of the "Be a Mom" intervention in reducing depressive and anxiety symptoms and enhancing positive mental health, linear mixed models (LMMs) were used. LMMs are particularly indicated for repeated longitudinal measures, being suited to handle missing data, as this approach allows the inclusion of incomplete cases to obtain parameter estimates (Siddiqui et al., 2009). Data were hierarchically arranged in two levels, with Time (level 1) nested with individuals (level 2). Group (intervention × control), time (Baseline and 4-month

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follow-up), and group*time interaction effects were entered as fixed effects. Covariates (sociodemographic and clinical variables that differed between the intervention and control groups) were included as predictor variables in the LMMs, allowing not only control of the effects of the covariates when estimating the time, group and time*group interaction effects but also examination of the effect of each of the covariates on the outcome measures. Participants were included as a random intercept. An LMM with an autoregressive covariance matrix was conducted for each outcome. Moreover, paired sample T tests were performed separately for each group to examine changes over time among women who completed both baseline and 4-month follow-up assessments (evaluative respondents). Based on benchmarks suggested by Cohen (1988), T test conventional effect sizes were interpreted as small ($d = 0.2$), medium ($d = 0.5$), and large ($d = 0.8$).

Additionally, to describe and compare the proportion of women presenting clinically relevant depression/anxiety symptoms or flourishing mental health at 4 months postintervention, women who completed follow-up assessments were classified as a function of the cutoff scores indicating clinically relevant depression (if the EPDS score was >9) or anxiety symptoms (if the HADS score was >10) or flourishing mental health (see the Measures description). Finally, three logistic regression models (one model per outcome) were computed to examine whether the changes during the intervention (the differential change score from baseline to postintervention) acted as significant predictors of the presence of clinically relevant symptoms/flourishing mental health after controlling for the effects of covariables and of the baseline score.

Results

PARTICIPANTS

Participants were enrolled in the study between January 2019 and January 2021. The participant flowchart is presented in Figure 1. Of the total sample of enrolled women, 1,367 had a high risk for PPD, and 1,053 completed the baseline assessment; participants were randomized to the intervention ($n = 542$) or to the control conditions ($n = 511$). The total number of participants who completed at least 1 postbaseline assessment (postintervention assessment) was 712 (dropout rate from baseline to postintervention: 32.4%, $n = 341$). Women who completed at least one postbaseline assessment were more frequently married/cohabiting with a partner (91.4% vs. 84.5%, $X^2 = 14.19$, $p = .003$), had a higher education level (65.2% vs. 49.5%, $X^2 = 19.71$, $p = .001$), had younger infants [M $(SD) = 1.98$ months (0.94) vs. M $(SD) = 2.13$ months (0.98), $t = 2.99$, $p = .022$] and had a lower PPD risk score [M $(SD) = 10.99$ (4.26) vs. M $(SD) = 12.4$ (5.00), $t = 3.88$, $p < .001$] than women who dropped out of the study without completing a postbaseline assessment. At 4 months postintervention, 554 women completed the assessment protocol (intervention group: $n = 195$; control group: $n = 359$; dropout rate from postintervention to 4-months follow-up: 22.2%). Differences in the level of education ($X^2 = 6.97$, $p = .008$) were found between women who completed a follow-up assessment and those who did not, with more women who completed the 4-month follow-up assessment having higher education levels (68.4% vs. 54.9%).

The sociodemographic and clinical characteristics of the participants who completed at least 1 postbaseline assessment of the primary efficacy variable are presented in Table 1. Despite the higher proportion of women who completed at least one postbaseline assessment in the control group ($n = 445$) than in the intervention group ($n = 266$), the sociodemographic and clinical characteristics of both groups were similar, except for parity ($p < .001$) and PPD risk ($p < .05$). These two variables were entered as covariates in the analyses.

FOR WHOM DOES THE "BE A MOM" INTERVENTION WORK? EXPLORING MODERATORS OF TREATMENT RESPONSE

Sociodemographic and Clinical Moderators

The differential change scores between baseline and postintervention for depressive symptoms (intervention group: $M = 1.94$, $SD = 4.47$ vs. control group: $M = 0.87$, $SD = 4.08$, $t_{710} = -3.25$, $p = .001$, $d = 0.25$), anxiety symptoms (intervention group: $M = 1.24$, $SD = 3.67$ vs. control group: $M = 0.09$, $SD = 3.54$, $t_{707} = -4.15$, $p < .001$, $d = 0.32$), and positive mental health (intervention group: $M = -3.52$, $SD = 11.45$ vs. control group: $M = -0.98$, $SD = 10.88$, $t_{696} = 2.92$, $p = .004$, $d = 0.23$) were introduced as dependent variables in the regression models.

Table 2 presents the correlations between the sociodemographic and clinical variables and the outcome change scores, considering both the intervention and the control groups. Concerning sociodemographic variables, a significant association was found between income level and the change in anxiety symptoms only in the intervention group, suggesting that a higher income level was associated with a higher decrease in symptoms

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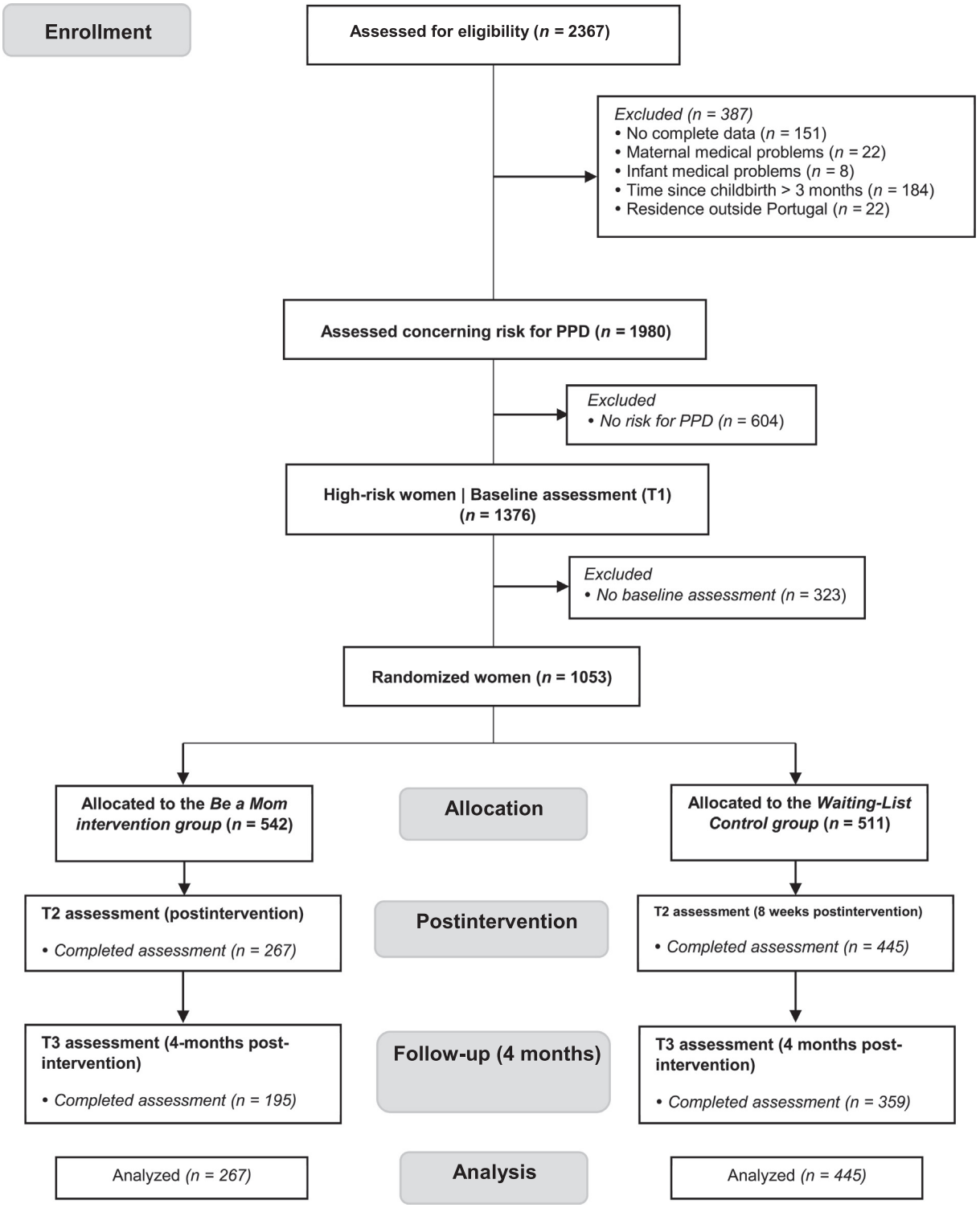

FIGURE 1 Participant flow diagram.

from baseline to postintervention. Moreover, the baseline score for all three outcomes was significantly associated with the respective change scores, for both the intervention and control groups. Finally, the PPD risk score was significantly associated with changes in depressive symptoms and positive mental health in the intervention group and only with changes in positive mental

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Table 1
Sociodemographic and Clinical Characteristics of Participants Who Completed at Least 1 Postbaseline Assessment: Comparison Between the Intervention and Control Groups

	Control group ($n = 445$)	Intervention group ($n = 267$)	t/X^2
Maternal sociodemographic characteristics			
Age, *M (SD)*	32.84 (4.63)	32.65 (4.006)	0.57
Marital status, *n (%)*			
Married/living together	403 (90.6)	248 (92.9)	1.70
Number of children, *n (%)*			
Primiparous	253 (57.5)	193 (72.8)	16.72**
Educational level, *n (%)*			
Higher education	195 (64.1)	120 (67.0)	3.37
Professional status, *n (%)*			
Employed	377 (86.5)	233 (88.9)	6.13
Monthly income, *n (%)*			
Less than 1000€	277 (62.2)	166 (62.2)	0.57
Residence location, *n (%)*			
Urban	348 (78.2)	216 (80.9)	0.74
Clinical characteristics			
Risk score, M (SD)	11.24 (4.40)	10.57 (4.00)	2.02*
Infant characteristics			
Infant age (in months), *M (SD)*	1.97 (0.93)	2.01 (0.96)	−0.67
Infant sex			
Male	231 (51.9)	129 (48.3)	1.57

* $p < .05$.
** $p < .001$

health in the control group. The variables that significantly correlated with the change scores were introduced in the regression models.

The regression models computed to examine the effect of Group, sociodemographic and clinical variables, and the interaction terms (Group*sociodemographic/clinical variables) are presented in Table 3. Regarding depressive symptoms, a significant effect of group, risk score, and baseline score was found, with women in the intervention group with lower PPD risk scores and higher depressive symptoms at baseline showing a higher change score, i.e., a higher decrease in depressive symptoms from baseline to postintervention. Additionally, a significant baseline score*group interaction effect was found ($B = 0.17$, $SE = 0.07$, $p = .016$), suggesting that the change in depressive symptoms was higher in women in the intervention group who presented higher depressive scores at baseline than that in women in the control group. Regarding anxiety symptoms, there was a significant main effect of group and baseline score, with women from the intervention group who had higher anxiety symptoms at baseline showing a higher change score, i.e., a higher decrease in anxiety symptoms from baseline to postintervention. In addition, a significant income*group interaction effect was found ($B = 1.17$, $SE = 0.52$, $p = .023$). More precisely, women with a moderate/high income level in the intervention group showed a higher change (decrease) in anxiety symptoms, while women with a moderate/high income level in the control group presented an increase in anxiety symptoms. Finally, concerning positive mental health, a significant group and baseline score effect was found, with women in the control group who had higher baseline scores presenting a higher change score in positive mental health (i.e., a lower increase in positive mental health over time).

Treatment Adherence: Completers vs Noncompleters

In the intervention group, 130 participants (48.7%) completed the "Be a Mom" program, whereas 22.9% ($n = 61$) only partially completed the program (i.e., completing two or three modules, depending on whether they were involved in an intimate relationship; see "Intervention and Control Arms") and 28.4% ($n = 76$) did not complete the program (i.e., completing fewer than two modules). To homogenize the dimension of groups included in the comparative analyses, partial completers and noncompleters were merged into a single group (i.e., "noncompleters," as those who did not complete the whole program); therefore, the subsequent comparisons were between participants who completed the whole program

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Table 2
Pearson Bivariate Correlations Between Sociodemographic and Clinical Variables and Outcome Change Scores for the Intervention and Control Groups

	Intervention group ($n = 195$)			Control group ($n = 359$)		
	Change in depressive symptoms (T1-T2 EPDS)	Change in anxiety symptoms (T1-T2 HADS)	Change in positive mental health (T1-T2 MHC)	Change in depressive symptoms (T1-T2 EPDS)	Change in anxiety symptoms (T1-T2 HADS)	Change in positive mental health (T1-T2 MHC)
Demographic variables						
Age	−.03	−.04	.01	−.03	.05	.02
Parity *(0 = Multiparous; 1 = Primiparous)*	−.07	.04	.08	.08	.05	−.04
Education level *(0 = High-school; 1 = Higher education)*	.08	.11	−.08	.04	−.01	−.02
Income level (*0 = Less than 1000€; 1 = 1000€ or more)*	.08	.14*	−.08	−.03	−.06	.05
Residence location *(0 = Rural, 1 = Urban)*	.05	−.07	−.01	.03	.02	.04
Clinical variables						
Risk score	.22***	.07	−.25***	.08	−.01	−.11*
Baseline score[1]	.45***	.38***	.32***	.26***	.32***	.23***
Psychopathological History (0 = No; 1 = Yes)	.07	.12	−.07	.02	.02	−.03

Note. 1. Baseline score is the score at baseline of the respective outcome variable considered. For example, the correlation between the baseline score and change in depressive symptoms represents the correlation between depressive symptoms at baseline and the change in depressive symptoms between baseline and postintervention.
** $p < .01$.
* $p < .05$.
*** $p < .001$.

Table 3
Moderators of Treatment Response: Examining the Effect of Sociodemographic and Clinical Variables as a Function of Group

	Change in depressive symptoms $R^2 = .22$, $F = 39.50$, $p < .001$			Change in anxiety symptoms $R^2 = .22$, $F = 39.78$, $p < .001$			Change in positive mental health $R^2 = .13$, $F = 21.48$, $p < .001$		
	B (SE)	*β*	*p*	*B (SE)*	B	*p*	*B (SE)*	*β*	*p*
Group *(0=control; 1 = intervention)*	1.44 (0.29)	.16	<.001	0.92(0.32)	.12	.004	−3.47 (0.82)	−.15	<.001
Baseline score*	0.36 (0.04)	.41	<.001	0.35 (0.04)	.39	<.001	0.25 (0.04)	.31	<.001
Risk score	−0.12 (0.05)	−.12	.012	–		–	0.16 (0.13)	.06	.237
Income	–	–	–	−0.16 (0.32)	−.02	.624	–	–	–
Interaction Baseline × Group	0.17 (0.07)	.12	.016	0.09 (0.06)	.06	.143	0.09 (0.07)	−.07	.275
Interaction Risk × Group	0.38 (0.08)	.02	.472	–	–	–	−0.25 (0.23)	−.05	.288
Interaction Income × Group	–	–	–	1.17 (0.52)	.11	.023	–	–	–

Note. 1. Baseline score is the score at baseline of the respective outcome variable considered. For example, the baseline score in the model predicting changes in depressive symptoms (EPDS) is the baseline EPDS score.

($n = 130$) and those who either partially completed the program or did not complete the program at all ($n = 137$). When comparing participants who completed the whole program ($n = 130$) with those who did not complete the program ($n = 137$), completers were found to present higher change scores than noncompleters in depressive symptoms [completers: M *(SD)* = 2.90 (4.30) vs. noncompleters: M *(SD)* = 1.06 (4.46), $t_{264} = -3.42$, $p = .001$, $d = 0.42$], anxiety symptoms [completers: M

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(SD) = 1.91 (3.66) vs. noncompleters: *M (SD)* = 0.61 (3.59), $t_{263} = -2.91$, $p = .004$, $d = 0.36$], and positive mental health [completers: *M (SD)* = −5.44 (11.50) vs. noncompleters: *M (SD)* = −1.67 (11.16), $t_{254} = 2.66$, $p = .008$, $d = 0.33$].

FOR HOW LONG DOES THE "BE A MOM" INTERVENTION WORK? INTERVENTION BENEFITS AT THE 4-MONTH FOLLOW-UP

Table 4 shows the estimated marginal means of the primary (depressive symptoms) and secondary (anxiety symptoms and positive mental health) outcomes as a function of time (baseline and 4-month follow-up) and group (intervention vs. control).

As shown in Table 4, concerning depressive and anxiety symptoms, a significant time*group interaction effect was found ($p = .005$), suggesting a higher decrease in depressive and anxiety symptoms from baseline to the 4-month follow-up in the intervention group than in the control group. Concerning positive mental health, a significant time*group interaction effect was also found ($p = .010$), suggesting a higher increase in positive mental health from baseline to the 4-month follow-up in the intervention group than in the control group. The PPD risk score was shown to significantly predict all outcomes, with women who had a higher risk score at baseline presenting higher levels of depressive and anxiety symptoms and lower levels of positive mental health.

Moreover, comparison analyses performed with the participants who completed both baseline and 4-month follow-up assessments (evaluative respondents) showed that the decreases in depressive symptoms over time were significant in both groups (intervention group: *mean difference* = 2.70, $SD_{Dif} = 4.90$, $t_{194} = 7.68$, $p < .001$, $d = 0.55$; control group: *mean difference* = 1.44,

Table 4
Primary and Secondary Outcome Measures: Estimated Marginal Means and Time, Group and Interaction Effects

Outcome variable	Group	Estimated Marginal Means		Linear Mixed Model Effects Estimates			
		Time 1 [baseline] *M (SE)*	Time 3 [4-month follow-up] *M (SE)*	Effect	*B (SE)*	95% CI	*p*
Depressive symptoms (EPDS score)	Intervention	10.91 (0.26)	8.29 (0.33)	Time	2.62 (0.33)	[1.96, 3.27]	<.001
	Control	11.52 (0.20)	10.07 (0.25)	Group	1.78 (0.41)	[0.98, 2.58]	<.001
				Time × Group	−1.17 (0.41)	[−1.98, −0.36]	.005
				Parity	−0.13 (0.30)	[−0.71, 0.46]	.667
				Risk_score	0.52 (0.04)	[0.45, 0.59]	<.001
Anxiety symptoms (HADS score)	Intervention	8.00 (0.22)	6.86 (0.29)	Time	1.14 (0.29)	[0.58, 1.70]	<.001
	Control	8.19 (0.18)	8.06 (0.22)	Group	1.20 (0.36)	[0.49, 1.91]	.001
				Time × Group	−1.01 (0.36)	[−1.72, −0.31]	.005
				Parity	−0.48 (0.27)	[−0.99, 0.05]	.073
				Risk_score	0.41 (0.03)	[0.35, 0.48]	<.001
Positive Mental Health (MHC-SF score)	Intervention	40.48 (0.74)	45.74 (0.97)	Time	−5.26 (0.89)	[0.67, 5.01]	.010
	Control	38.39 (0.57)	40.81 (0.73)	Group	−4.93 (1.21)	[−7.32, −2.54]	<.001
				Time × Group	2.84 (1.10)	[0.67, 5.01]	.010
				Parity	0.57 (0.90)	[−1.83, −1.44]	<.001
				Risk_score	−1.63 (0.10)	[−1.83, −1.43]	<.001

Note. Estimated means adjusted for the covariates (parity and PPD risk score).

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SD_{Dif} = 4.65, t_{358} = 5.86, p < .001, d = 0.31), although the effect size was larger in the intervention group. Concerning anxiety symptoms, there was a significant decrease over time in the intervention group (*mean difference* = 1.16, SD_{Dif} = 4.08, t_{194} = 3.97, p < .001, d = 0.28), but not in the control group (*mean difference* = 0.13, SD_{Dif} = 4.09, t_{358} = 0.62, p = .534, d = 0.03). Finally, the increase in positive mental health levels was significant for both groups (intervention group: *mean difference* = −5.21, SD_{Dif} = 12.69, t_{194} = −5.69, p < .001, d = 0.41; control group: *mean difference* = −2.26, SD_{Dif} = 12.23, t_{358}= -3.48, p < .001, d = 0.18), although the effect size was larger in the intervention group.

Finally, we explored the proportion of women presenting clinically relevant depression/anxiety symptoms or flourishing mental health at 4-months postintervention in both groups and whether the changes during the intervention (from baseline to postintervention) acted as significant predictors, after controlling for the effects of the covariates and the baseline score.

There was a significant difference (X^2 = 16.36, p < .001) in the proportion of women presenting clinically relevant levels (EPDS score > 9) of depressive symptoms at 4-month follow-up (32.8% [n = 64] in the intervention group vs. 50.7% [n = 182] in the control group). The binary logistic regression model to examine whether changes from baseline to postintervention were related to presenting clinically relevant depressive symptoms (EPDS score > 9) at follow-up in both groups is presented in Table 5. The final model was significant ($\chi^2_{(5)}$ = 253.34, p < .001, Cox & Snell R^2 = .37; Nagelkerke R^2 = .50) and correctly predicted 79.0% of cases. After controlling for PPD risk score and parity, the odds of presenting clinically relevant depressive symptoms were higher for women who had a higher EPDS score at baseline and for women presenting a lower change score (i.e., smaller improvement or deterioration in symptoms) from baseline to postintervention. When first introduced in the model, the group effect was significant, with women belonging in the intervention group having lower odds of presenting clinically relevant depressive symptoms [*B(SE)* = −0.72 (0.21), p = .001, *OR* (95% CI) = 0.49 (0.32/0.74)], but the effect was nonsignificant after introducing the EPDS change score variable.

Regarding anxiety symptoms, there was also a significant difference (X^2 = 8.40, p = .004) in the proportion of women presenting clinically relevant levels of anxiety symptoms (HADS score > 10) at the 4-month follow-up (16.99% [n = 33] in the intervention group vs. 28.0% [n = 99] in the control group). The final logistic regression model correctly predicted 82.4% of cases ($\chi^2_{(5)}$ = 171.04, p < .001; Cox & Snell R^2 = .37; Nagelkerke R^2 = .50). After controlling for PPD risk and parity, women had a higher likelihood of presenting clinically relevant anxiety symptoms if they had higher anxiety scores at baseline and a smaller change score in anxiety symptoms from baseline to postintervention (i.e., a smaller improvement

Table 5
Predictors of Clinically Relevant Symptoms of Depression/Anxiety or Flourishing Mental Health at 4 Months Postintervention: Examining the Role of Change Between Baseline and Postintervention

	DV: Clinically relevant depressive symptoms			DV: Clinically relevant anxiety symptoms			DV. Flourishing mental health		
	B (SE)	*p*	OR [95% CI]	*B (SE)*	*p*	OR [95% CI]	*B (SE)*	*p*	OR [95% CI]
Risk score	0.05 (0.03)	.098	1.05 [0.99, 1.11]	−0.02 (0.03)	.550	0.98 [0.93, 1.04]	−0.01 (0.03)	.788	0.99 [0.93, 1.06]
Parity (*(0 = Multiparous; 1 = Primiparous)*	0.22 (0.24)	.341	1.25 [0.78, 1.98]	−0.15 (0.26)	.560	0.86 [0.52, 1.43]	0.23 (0.24)	.334	1.26 [0.79, 2.02]
Baseline score[1]	0.39 (0.04)	<.001	1.48 [1.37, 1.60]	0.43 (0.05)	<.001	1.54 [1.41, 1.68]	0.13 (0.01)	<.001	1.13 [1.11, 1.13]
Group *(0 = control; 1 = intervention*	−0.31 (0.24)	.196	0.73 [0.46, 1.18]	−0.27 (0.27)	.318	0.76 [0.45, 1.30]	0.22 (0.23)	.354	1.24 [0.79, 1.96]
Change score[2] (Baseline – Postintervention)	−0.34 (0.04)	<.001	0.71 [0.66, 0.77]	−0.29 (0.04)	<.001	0.75 [0.70, 0.81]	−0.70 (0.01)	<.001	0.93 [0.91, 0.95]

Notes. 1. Baseline score is the score at baseline of the respective outcome variable considered. For example, the baseline score in the model predicting clinically relevant depressive symptoms at the 4-month follow-up is the baseline EPDS score. 2. The change score is the difference between the baseline score and the score at postintervention for each specific outcome variable considered. For example, the change score in the model predicting clinically relevant depressive symptoms at the 4-month follow-up is the difference between the EPDS score at baseline and the EPDS score at postintervention. 3. VIF (Variance Inflation Factor) values ranged from 1.049 to 1.619, indicating no multicollinearity problems.

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or deterioration of symptoms). In addition, the group effect was significant when first introduced in the model, with women in the intervention group having lower odds of having a HADS score > 10 [$B(SE)$ −0.63 (0.25), $p = .013$, OR (95% CI) = 0.534 (0.33/0.88)], but the effect was nonsignificant after introducing the HADS change score variable.

Regarding positive mental health, there was a significantly higher proportion of women in the intervention group than in the control group who had flourishing mental health ($X^2 = 6.64$, $p = .010$; intervention group: 53.0% [$n = 97$] vs. control group: 41.1% [$n = 132$]. The final binary logistic model was significant ($\chi^2_{(5)} = 198.73$, $p < .001$; Cox & Snell $R^2 = .33$; Nagelkerke $R^2 = .44$) and correctly predicted 77.8% of cases. Similar to previous models, the odds of having flourishing mental health at the 4-month follow-up were higher for women who had higher levels of positive mental health at baseline and a lower change score in positive mental health (i.e., a higher increase in positive mental health) from baseline to postintervention. When first introduced in the model, the group effect was marginally significant ($p = .093$), but it was nonsignificant after introducing the MHC change score variable.

Discussion

This is the first study evaluating the mid-term efficacy of the "Be a Mom" program, an innovative iCBT intervention to prevent PPD, over 4 months postintervention. The study also sought to examine sociodemographic and clinical moderators of treatment response. The observed results attest to the efficacy of the "Be a Mom" program in improving the mental health outcomes of women at high risk for PPD and suggest that treatment completion, higher baseline outcome scores, and higher professional income levels are uniquely linked to greater symptom reduction and positive mental health enhancement.

Although previous studies demonstrated the efficacy of the "Be a Mom" intervention in the reduction of psychological distress symptoms from baseline to postintervention (Carona et al., 2023b), the findings of this study enabled the detection of which subgroups of participants may benefit more from the "Be a Mom" intervention. Overall, greater positive change scores in depressive symptoms were observed for women with lower PPD risk scores and higher levels of depressive symptoms at baseline. Particularly, women in the intervention group with higher depression scores at baseline displayed the greatest change in depressive symptoms when compared to those in the control group. Given the that psychosocial risk assessment for postpartum women typically encompasses several contextual dimensions that tend to be relatively stable or have long-lasting effects over time (e.g., life adversity, social support/partner relationship, maternal feelings toward motherhood; Bernazzani et al., 2005), it is plausible to assert that women with lower PPD risk scores were enrolled in the intervention program at a much more favorable point in time than their counterparts with higher PPD risk scores (e.g., perinatal women with a history of a previous psychiatric disorder are more likely to report a lack of time as a barrier to self-care; Fonseca et al., 2015). On the other hand, higher levels of initial symptoms seem to predict a greater reduction in depressive symptoms over time, possibly because of a greater need for care and perceived usefulness of the program or through a stronger activation of positive social support systems (Holden et al., 2019).

As in the aforementioned case of depressive symptoms, higher anxiety scores at baseline were predictive of a greater decrease in anxiety symptoms following the intervention. This result is aligned with previous reports indicating that although lower initial symptom severity is typically linked to better therapeutic outcomes, there is a relevant subgroup of patients who exhibit substantial improvements or even greater improvements in anxiety symptoms throughout treatment, despite their heightened levels of anxiety in initial assessments (Asnaani et al., 2016; Schauenburg et al., 2001). Women experiencing greater anxious distress may likely appraise the intervention program as more relevant and useful (cf. Holden et al., 2019). Notwithstanding, women in the intervention group with higher income levels displayed a greater decrease in anxiety symptoms, whereas women in the control group with higher income presented an increase in anxiety symptoms when compared to those with low income levels. Indeed, higher income seems to be associated with greater therapeutic reductions in psychological distress and better treatment response in women with emotional disorders (Mills et al., 2022; Shields-Zeeman et al., 2021); however, more affluent women struggling with mental health difficulties may experience additional stress from pressures to achieve and spend less time with their children (cf. Luthar, 2003).

Together with its applications for the prevention of PPD in at-risk women, the "Be a Mom" intervention has shown promising results for the enhancement of positive mental health in women at low risk for PPD (Monteiro et al., 2020b). In

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the current study, additional evidence of the usefulness of the "Be a Mom" intervention to improve flourishing mental health (concomitantly with the alleviation of depressive and anxiety symptoms) in women at high risk for PPD was gathered. This is especially important for the achievement of optimal therapeutic outcomes because interventions that directly target the upregulation of positive affect are particularly useful for reducing clinical distress and increasing positive emotions and well-being (Taylor et al., 2017) and tend to result in greater reductions in depressive and anxiety symptoms than interventions exclusively targeting negative affect (Craske et al., 2019). In parallel with another RCT that examined the efficacy of a guided self-help CBT-based intervention for increasing flourishing mental health in people with depressive symptomatology (Bohlmeijer et al., 2015), women with higher baseline scores reported a lower increase in positive mental health over time in our study.

Although both noncompleters and completers of the "Be a Mom" intervention reported a reduction in distress and an improvement in positive mental health, differences between the corresponding change scores were considerable, with those women who completed the "Be a Mom" intervention presenting higher change scores in primary and secondary outcomes than noncompleters. The finding that completers derive more benefit from an online CBT intervention than noncompleters is aligned with previous observations (Hilvert-Bruce et al., 2012), particularly for perinatal anxiety (Ponting et al., 2022). Although the reasons for not completing the "Be a Mom" intervention (a lack of time appears to be the main reason for noncompletion) are analyzed elsewhere (Xavier et al., 2022), there seems to be a subgroup of participants who do not complete web-based CBT programs but still make some progress in reducing their psychological distress and may therefore have a positive reason for concluding early (Mason & Andrews, 2014).

From baseline to the 4-month follow-up, there was a greater decrease in depressive and anxiety symptoms and a more substantial increase in positive mental health in the intervention group than in the control group. Accordingly, the proportion of women presenting clinical levels of depressive and anxiety symptoms was higher in the control group than in the intervention group; conversely, the proportion of women with flourishing mental health was higher in the intervention group than in the control group. While not measured directly in this study, these findings suggest that women at high risk for PPD learn CBT skills during the "Be a Mom" intervention and use them afterward, which results in helpful impacts such as reduced symptoms and enhanced flourishing even in the mid-term (cf. Eilert et al., 2022). Nonetheless, it bears noting that the odds of presenting clinical levels of depressive and anxiety symptoms at the 4-month follow-up were higher for women who had greater depression/anxiety scores at baseline, and lower change scores (i.e., minor improvement or worsening of symptoms) between baseline and postintervention. Likewise, the odds of presenting flourishing mental health at the 4-month follow-up were higher for women who had greater flourishing scores at baseline, and lower change scores (i.e., a greater increase in flourishing mental health) between baseline and postintervention. Although results regarding the predictive value of pretreatment symptoms on the treatment response to iCBT for depression have been mixed (Høifødt et al., 2015; Webb et al., 2017), our findings endorse the general claim that symptom burden (i.e., more baseline symptoms predict larger improvements) and adherence to treatment seem to be strong predictors of iCBT outcomes (Hedman et al., 2013).

This RCT gathered crucial evidence to ascertain the usefulness and mid-term efficacy of the "Be a Mom" intervention in reducing psychological distress and enhancing positive mental health in women at high risk for PPD. The observed results suggest that the "Be a Mom" intervention may be effectively administered as a selective/indicated intervention to prevent PPD and promote perinatal mental health in women at risk for PPD. Therefore, clinicians should be mindful of the importance of conducting informative psychosocial risk assessments and symptom screening prior to any treatment referral, including the recommendation of an iCBT tool such as the "Be a Mom" program. Moreover, even though iCBT for PPD may be useful in reducing the risk of relapse (Webb et al., 2017) and rather effective in maintaining symptom reduction over a 21-week follow-up for depressed postpartum women (Milgrom et al., 2021), clinicians are advised to regularly encourage treatment adherence and monitor the evolution of symptoms to maximize the benefits and minimize any potential risks related to the use of an iCBT tool.

Despite its contributions, some limitations should be considered in this study. First, participants were enrolled in the RCT exclusively through online recruitment, which may have excluded women with the lowest levels of digital literacy and those who, through lack of interest or opportunity, do not use social media at all. Second, eligible women were assessed online

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regarding their risk for PPD, which may have increased the odds for self-selection bias (i.e., women experiencing higher distress and/or with greater interest in the study may have been prone to participate) and thus impaired the representativity of the resulting sample for all women at risk for PPD. Third, the dropout rates (32.4% from baseline to postintervention, and 22% from postintervention to the 4-month follow-up in the total sample) were higher in the intervention group than in the control group. This could be because no compensation was given to participants in the study, and most women in the intervention group who abandoned the "Be a Mom" program indicated a lack of time (i.e., a heightened time burden from increased daily chores during the postpartum period) as the main reason for dropout (suggesting that some of them might not have had the time to complete the assessment protocol in addition to attending the program). Likewise, participants in the waiting-list control group were less likely to drop out, possibly because their participation was less demanding, implied less time allocated to the research, and could ultimately sustain their motivation to access the intervention. Despite this discrepancy, both groups presented similar sociodemographic characteristics, and those that distinguished completers and noncompleters in the total sample were introduced as covariates in the analyses. In any case, the promotion of adherence to treatment should be prioritized in future research on the clinical utility of the "Be a Mom" intervention. Fourth, data were exclusively collected through self-report questionnaires, which may be easily affected by social desirability factors (e.g., myths of "perfect motherhood" tend to become inflated during the postpartum period).

To provide further evidence for establishing the efficacy of the "Be a Mom" intervention in preventing PPD and increasing flourishing mental health, more follow-up assessments are needed (up to 12 months postpartum) while controlling for the effect of time between assessments in the respective analyses. As the existing evidence points to equivalent overall effects of iCBT and face-to-face CBT in the treatment of some emotional disorders (Esfandiari et al., 2021), a blended CBT intervention for PPD, adapted from the "Be a Mom" intervention (Branquinho et al., 2020), is now under development.

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