

ARTIGO ORIGINAL/ORIGINAL ARTICLE

Matter: Capacitação, Rastreio e Intervenção Comunitária em Saúde Mental Perinatal

Matter: Training, Screening and Community Intervention in Perinatal Mental Health

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ABSTRACT

Introduction: Perinatal mental disorders are a major public health concern and remain underdiagnosed despite their significant impact on women, infants and families. The lack of structured screening, referral pathways, and coordination among primary healthcare, psychiatry, and community services compromises early detection and continuity of care. The Matter programme proposes an integrated implementation model to strengthen perinatal mental healthcare.

Methods: This protocol describes a prospective, single-arm, mixed-methods implementation study with a repeated-measures observational cohort, embedded in an action research framework. The intervention comprises four components: (i) sequential digital screening and operational pathway allocation in primary healthcare; (ii) specialised training for health and social care professionals; (iii) multidisciplinary meetings combined with qualitative implementation monitoring; and (iv) development of a digital platform supporting the service-user's care pathway. Participants will complete assessments at 12 and 24 weeks of pregnancy, 4–6 weeks postpartum, and 6 months postpartum using the Edinburgh Postnatal Depression Scale (EPDS), EQ-5D-5L, and a healthcare resource utilisation questionnaire. The study is designed to evaluate reach, uptake, feasibility and care-pathway delivery; without a concurrent comparison group, it is not designed to establish causal effectiveness. Trial registration on ClinicalTrials.gov: NCT07659977

Results: We expect approximately 5600 screening invitations or assessment opportunities over two years. Assuming a planning prevalence of 20% for elevated depressive symptoms, approximately 1120 screening events may yield an elevated EPDS result; these are screening events rather than diagnoses or necessarily unique women. The programme also aims to train approximately 324 professionals and implement an integrated digital platform to support screening, referral pathways, and clinical decision-making. The team will evaluate implementation, platform utilisation, participant-reported outcomes, resource use, and within-cohort QALYs.

Conclusion: Matter proposes an integrated implementation model linking primary healthcare, psychiatry and community services through digital technologies, specialised professional training and multidisciplinary collaboration. If shown to be feasible, acceptable and capable of achieving the prespecified implementation targets, it may inform the adaptation and evaluation of similar perinatal mental healthcare pathways in other settings.

Keywords: Depression, Postpartum/psychology; Early Diagnosis; Perinatal Care; Psychometrics

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RESUMO

Introdução: A doença mental perinatal constitui um importante problema de saúde pública, frequentemente subdiagnosticada e insuficientemente integrada nos cuidados de saúde materna. A ausência de modelos estruturados de rastreio, referenciação e articulação entre os cuidados de saúde primários, a psiquiatria e os recursos comunitários, limita a deteção precoce e a continuidade assistencial. O programa Matter propõe um modelo integrado de implementação para melhorar a resposta em saúde mental perinatal.

Métodos: Este protocolo descreve um estudo prospectivo de implementação, de braço único e métodos mistos, com uma coorte observacional de medidas repetidas, enquadrado numa abordagem de investigação-ação. A intervenção integra quatro componentes: (i) rastreio digital sequencial e alocação a percursos assistenciais nos cuidados de saúde primários; (ii) formação especializada de profissionais de saúde e do setor social; (iii) reuniões multidisciplinares e monitorização qualitativa da implementação; e (iv) desenvolvimento de uma plataforma digital de apoio ao percurso assistencial da utente. As participantes serão convidadas a realizar avaliações às 12 e 24 semanas de gravidez, 4–6 semanas após o parto e 6 meses após o parto, utilizando a *Edinburgh Postnatal Depression Scale* (EPDS), o EQ-5D-5L e um questionário sobre o uso de recursos de saúde. O estudo avalia o alcance, a adesão, a viabilidade e a execução do percurso assistencial; sem um grupo de comparação concorrente, não permitirá estabelecer eficácia causal. Registo do ensaio clínico no ClinicalTrials.gov: NCT07659977

Resultados: Prevê-se a emissão de aproximadamente 5600 convites para rastreio ou para oportunidades de avaliação ao longo de dois anos. Admitindo, para efeitos de planeamento, uma prevalência de 20% de sintomas depressivos elevados, cerca de 1120 eventos de rastreio poderão apresentar um resultado EPDS elevado; estes valores correspondem a eventos de rastreio, não a diagnósticos nem necessariamente a mulheres distintas. Prevê-se ainda a formação de aproximadamente 324 profissionais e a implementação de uma plataforma digital integrada. Serão avaliados indicadores de implementação, de utilização da plataforma, de resultados reportados pelas participantes, de utilização de recursos e de QALYs na coorte.

Conclusão: O projeto Matter propõe um modelo integrado de implementação que articula cuidados de saúde primários, psiquiatria e a comunidade por meio de tecnologias digitais, formação especializada e colaboração multidisciplinar. Caso demonstre viabilidade, aceitabilidade e cumprimento das metas de implementação predefinidas, poderá informar sobre a adaptação e a avaliação de percursos semelhantes em outros contextos.

Palavras-chave: Cuidados Perinatais; Depressão Pós-Parto; Diagnóstico Precoce; Psicometria

INTRODUCTION

The perinatal period, defined as the period from conception to one year after birth, is a time of substantial physical, psychological, social and relational change. Mental health disorders may emerge or worsen rapidly during this period, with consequences for the woman, the baby and the family or close care relations of the mother.

It is common for parents to experience an intensified process of psychological distress during pregnancy and/or the postpartum period. This distress is often neglected not only by close support figures but also by healthcare professionals, partly because attention during pregnancy is predominantly focused on obstetric well-being, foetal health and, subsequently, infant health. From a holistic perspective, perinatal mental health should be considered a key determinant to be actively safeguarded throughout pregnancy and the postpartum period, as it is essential to a healthy parenting process and fundamental to child development. Perinatal mental health problems constitute a major area of unmet need in obstetric, maternal and child healthcare. Depression during the first year after birth is common and may begin before pregnancy, during pregnancy or in the postpartum period.^{1,2} Early identification and appropriate clinical assessment are therefore important to reduce distress, obstetric complications, the severity of psychiatric care needs, and difficulties with bonding, emotional self-regulation and child development.

Perinatal mental health disorders have also been described as the leading undiagnosed obstetric complication, and the

perinatal period as the life stage during which women are at greatest risk of developing mental illness.¹ In a study involving more than 10 000 women, the prevalence of depression during the first year postpartum was 21.9%; 26.5% of episodes began before pregnancy, 33.4% during pregnancy and 40.1% after childbirth.² Indeed, when compared with other stages of life, mental illness during the perinatal period may progress more rapidly. This reinforces the need for mental healthcare interventions that ensure both continuity of care and timely response, reducing the risks associated with untreated illness for the woman, the infant and the family. Several international recommendations, including those of the World Health Organization (WHO), advocate for the early identification of diagnosed mental illness, or risk of relapse, during pregnancy and the postpartum period. Furthermore, they consider referral to specialist care as a priority when severe mental illness or clinically significant risk is present.^{3,4} Portugal is no exception to these international guidelines: the Directorate-General of Health (DGS) identifies promoting mental health during pregnancy and early childhood as a priority area for early intervention.⁵ Epidemiological evidence showing the substantial global prevalence of perinatal mental health disorders further supports the need for structured intervention and for the integration of perinatal mental healthcare into maternal and child health services.⁴ Despite these recommendations, Portugal's lack of a structured support plan during pregnancy and the postpartum period limits continuity of care. To better understand how this absence unfolded in practice, a pilot study was

launched in January 2023 to assess the impact of implementing a perinatal mental health intervention focused on screening and early intervention integrated into community care, which preceded and systematically informed the design and proposed implementation of this programme.

The Matter programme was designed to address these needs through a multidisciplinary clinical digital intervention coordinated with the community dimension. Its primary aim is to implement and facilitate automated screening and early intervention for perinatal mental health, while simultaneously creating clinical coordination networks linking primary healthcare, psychiatry, and community services, including the social care sector. This protocol describes the implementation and expected indicators of the Matter programme.

MATERIAL AND METHODS

a. Study design and setting

Matter is a prospective, single-arm, mixed-methods implementation study conducted in the Local Health Unit of Central Alentejo (ULSAC), coordinated by the University of

Évora–Comprehensive Health Research Centre (CHRC). Its quantitative component is an observational cohort with repeated assessments from pregnancy to 6 months postpartum and no concurrent comparison group. The qualitative component is embedded in an action research framework and examines barriers, facilitators and adaptations during implementation. The programme comprises four implementation strands (Table 1): screening and early intervention; professional training; multidisciplinary meetings and qualitative monitoring; and a digital service-user pathway platform. Accordingly, the study will estimate reach, uptake, fidelity, feasibility and changes over time, but will not support causal claims of effectiveness.

The primary objective is to determine whether the digital pathway achieves the prespecified screening-completion targets. Secondary objectives are to describe pathway fidelity, timeliness of clinical review and access to indicated care; changes in depressive symptoms and health-related quality of life; professional and system implementation outcomes; resource use; and implementation barriers and facilitators.

Table 1. Implementation structure of the Matter programme

Strand	Objective	Sample	Planned indicators
1. Early intervention and clinical stratification	Implement screening, identification, early intervention and appropriate referral in perinatal mental health.	Women receiving care in primary care units of the Local Health Unit of Central Alentejo at 12 and 24 weeks of pregnancy, 4-6 weeks postpartum and 6 months postpartum.	Number of screenings; EPDS score; referrals by risk level; programme engagement.
2. Training and multidisciplinary connections	Train health and social care professionals in perinatal mental health.	Professionals from primary healthcare, early intervention, CPCJ, EMAT and CAFAP.	Number and proportion of professionals trained; perinatal mental health specialised training programme conclusion.
3. Multidisciplinary coordination: meetings and monitoring	Promote continuing training, peer consultation and identification of barriers and facilitators via monitoring process.	Trained professionals from primary healthcare, early intervention, CPCJ, EMAT and CAFAP.	One-off and regular participation; topics discussed; qualitative implementation monitoring data.
4. Digital platform and pathway	Create and monitor the service-user clinical pathway and host programme materials.	Screened service users and professionals with differentiated access levels.	Platform engagement; regular use; alerts and recommendations.

The programme aims to expand to all primary healthcare units in Central Alentejo, following the model already tested in the abovementioned pilot. It will integrate digital tools to facilitate communication with service users, risk stratification, referral and multidisciplinary visibility of the clinical pathway.

b. Participants and recruitment

The study will include women aged 16 to 46 years who receive care at primary health care units in Central Alentejo, can read and write Portuguese, and have a mobile phone or can access an online questionnaire via mobile phone or email.

Participants will be identified in regular scheduled appointments in primary care during pregnancy medical surveillance (already provided within pregnancy and post-partum surveillance in Portuguese National Health System). At any appointment during this period, primary health care professionals can invite participants and activate a systematic, automated screening journey. Participation will be voluntary and preceded by reading and accepting an informed consent form explaining the programme's objectives, the relevance of data collection, referral pathways and confidentiality principles. After consent, the activation of the screening journey sends a socio-demographic characterization instrument, which includes a question regarding the time of pregnancy

or postpartum at which the service user is, and thereafter, based on that answer, will determine the appropriate time point to send the mental health screening instruments. The qualitative research monitoring component will sample healthcare professionals (mainly based on the work of strand 2) and other providers in wider community services (strand 3) for interviews and focus group participation to identify barriers and facilitators to implementing the Matter digital pathway within clinical ICT (Information and Communications Technology) systems and day-to-day care provision.

c. Intervention

The Matter programme is a multicomponent intervention designed to promote the early identification, stratification and management of perinatal mental health problems through the integration of digital technologies, evidence-based clinical pathways, specialized professional training and multidisciplinary collaboration. An overview of the intervention is presented in Fig. 1.

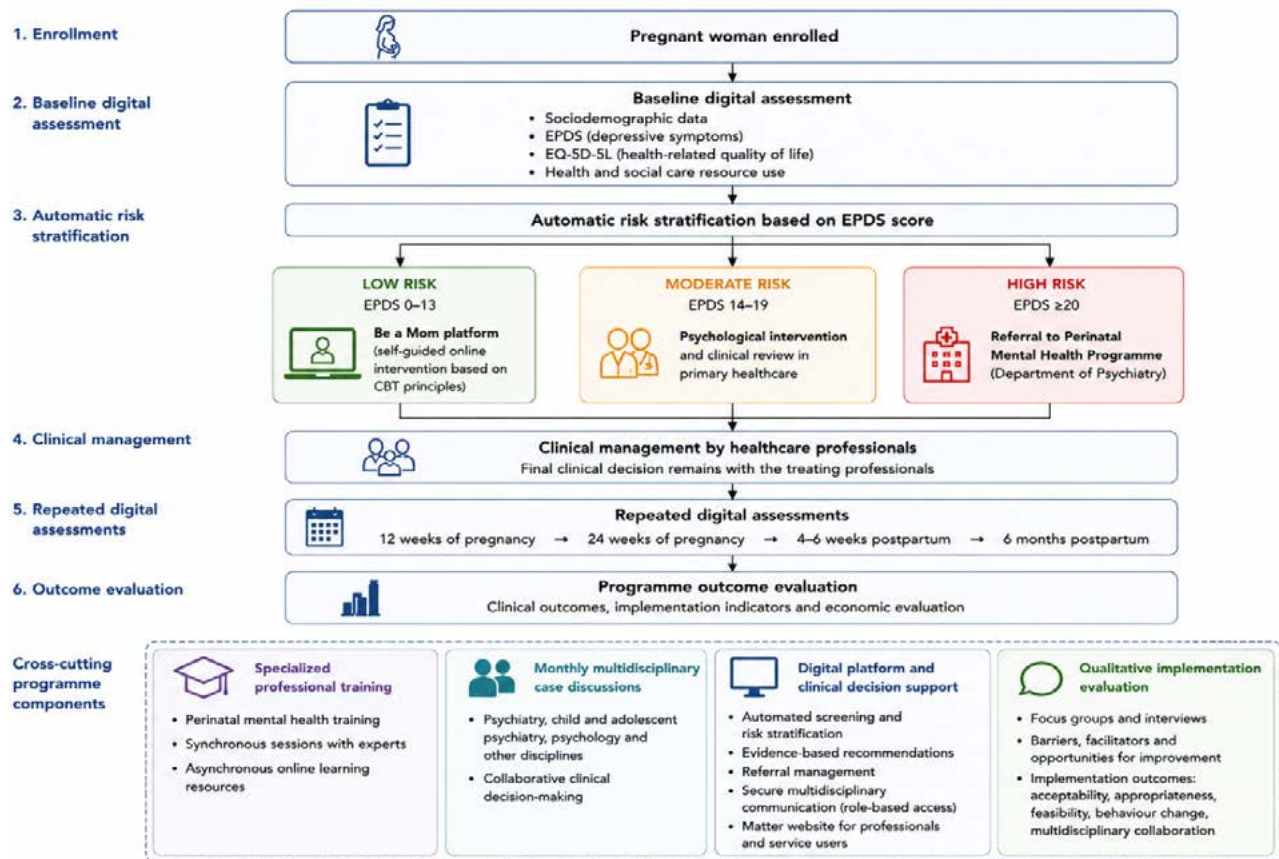


Figure 1. Overview of the Matter programme (CBT, cognitive behavioural therapy; EPDS, Edinburgh Postnatal Depression Scale; EuroQol five-dimension five-level). The low, moderate, and high labels denote operational pathway levels, not diagnostic categories.

After activation of the patient pathway, women complete a baseline digital assessment covering sociodemographic information, depressive symptoms, health-related quality of life, and healthcare resource utilisation. Follow-up assessments are automatically scheduled at 12 and 24 weeks of pregnancy, 4–6 weeks postpartum, and 6 months postpartum.

Depressive symptoms are assessed using the Edinburgh Postnatal Depression Scale (EPDS), a validated 10-item self-report screening instrument; it is not a diagnostic test. We use Total scores^{6–8} as pragmatic operational thresholds for pathway allocation rather than diagnostic or stand-alone clinical risk categories. These thresholds support, but never replace, clinical assessment and professional judgement. Health-related quality of life is assessed using the EQ-5D-5L, enabling estimation of quality-adjusted life years

(QALYs) for the economic evaluation. The instrument assesses mobility, self-care, usual activities, pain/discomfort and anxiety/depression using population-preference values for the Portuguese population.^{9,10} Participants also complete a healthcare resource utilization questionnaire covering healthcare contacts, medication use, emergency services, social support resources, productivity losses and out-of-pocket expenditure.

For pathway allocation, EPDS scores of 0–13, 14–19 and ≥ 20 define operational levels 1, 2 and 3, respectively. The EPDS score bands 0–13, 14–19, and ≥ 20 were derived from equipercentile linking with the Beck Depression Inventory, mapping to minimal, moderate, and severe depression ranges respectively.¹¹ Hence the bands reflect symptom severity levels rather than direct probabilities of meeting diagnostic criteria. Considering the need for the

definition of bands allowing for automated and accessible screening and severity stratification, both the score of ≥ 13 (which has a sensitivity of 0.66 and specificity of 0.95 against semi-structured interviews, compared with sensitivity of 0.81 and specificity of 0.88 at ≥ 11)¹² and the score ≥ 20 were considered accurate. These thresholds align with increasing follow-up intensity within the Matter pathway.¹¹ The Portuguese validation supports use of the EPDS as a screening measure, but it does not validate these three operational bands as diagnostic or universal risk categories.^{6–8} Level 1 participants are offered access to the Be a Mom self-guided online psychological intervention.^{13,14} Level 2 prompts psychological intervention and clinical review in primary healthcare, whereas level 3 prompts specialized assessment through the Psychiatry Department's Perinatal Mental Health Programme. The EPDS result does not establish a diagnosis, and the treating clinician may override the suggested pathway following assessment. Safety procedures are independent of the total EPDS score. Any response other than 'never' to item 10 generates a high-priority alert and bypasses routine pathway allocation. The designated primary healthcare clinical team reviews the alert on the same working day (or the next working day for submissions outside service hours), performs and documents a direct suicide-risk assessment, and arranges urgent psychiatric or emergency assessment when indicated. The platform simultaneously advises participants to contact emergency services if there is imminent danger. Clinical review also considers severe symptoms, psychosis, mania, safeguarding concerns and risk to the infant. To support implementation of the pathway, the programme includes a structured training strategy targeting healthcare professionals and community practitioners from primary healthcare, Early Intervention Teams (EIP), Child and Youth Protection Commissions (CPCJ), Multidisciplinary Technical Support Teams for the Courts (EMAT) and Family Support and Parental Counselling Centres (CAFAP). The training is delivered as a university-accredited micro-credential training coordinated by the University of Évora. It combines synchronous sessions led by perinatal mental health specialists with asynchronous online learning resources designed to help translate knowledge into clinical practice. After completing the training programme, professionals are invited to participate in monthly multidisciplinary case discussion meetings with specialists in psychiatry, child and adolescent psychiatry, psychology, and related disciplines. These meetings aim to strengthen collaborative clinical decision-making and facilitate the implementation of the Matter pathway. Programme implementation will be evaluated through focus groups and semi-structured interviews that explore barriers, facilitators, and opportunities for improvement. A digital platform serves as the programme's central implementation mechanism, integrating screening, clinical decision support, referral management, multidisciplinary communication, and outcome monitoring. Developed in collaboration with an external technology partner and integrated into the information systems of the Local Health

Unit of Central Alentejo (ULSAC) and the Shared Services of the Portuguese Ministry of Health (SPMS), the platform supports automated screening, risk stratification, evidence-based recommendations and secure communication between professionals according to predefined access levels. The platform also hosts the Matter website, which provides information and digital resources for healthcare professionals, pregnant women, and their families.

d. Data analysis

Quantitative analyses will be conducted using IBM SPSS Statistics (IBM Corp., Armonk, NY, USA). The primary implementation outcome is screening completion, defined at each scheduled time point as the number of completed EPDS questionnaires divided by the number of invitations successfully delivered to eligible enrolled participants. The main implementation hypothesis is that completion will reach at least 60% in year 1 and 80% in year 2. We will report estimates with 95% confidence intervals. Secondary outcomes include repeat-screening adherence; partial completion; time from invitation to completion; the proportions of participants with an elevated result who receive documented clinical review, referral, a scheduled appointment and initiation of indicated care; time to each care-pathway event; EPDS score; EQ-5D-5L utility; healthcare resource use; and professional- and system-level implementation indicators.

We will summarise continuous variables using means and standard deviations or medians and interquartile ranges, as appropriate; we will report categorical variables as counts and percentages. We will analyse screening completion, referral, and care-access outcomes using multivariable logistic regression. We will analyse time-to-review and time-to-care outcomes using Kaplan–Meier estimates and Cox regression, if event counts and timing permit. Repeated EPDS scores and EQ-5D-5L utilities will be analysed using linear mixed-effects models with time as a categorical fixed effect and a participant-level random intercept; a generalised mixed-effects model will be used for repeated binary outcomes. Prespecified covariates are age, assessment time point, parity, previous mental health history, socioeconomic indicators available in the baseline questionnaire and recruiting primary healthcare unit. We will address unit-level clustering using a random intercept or cluster-robust standard errors, depending on model convergence and the number of participating units. We will assess model assumptions, collinearity, and influential observations, and report adjusted estimates with 95% confidence intervals. We will interpret these analyses as associations and within-cohort change, not causal intervention effects. For the primary implementation outcome, we will classify a missing questionnaire after a successfully delivered invitation as non-completion; we will report invitations that cannot be delivered because of a verified technical failure separately. We will describe the amount and pattern of missing covariate and longitudinal outcome data. Mixed-effects models will use all available repeated observations under a missing-at-random assumption. If more than 5% of observations are excluded from an adjusted

model because of missing covariates, multiple imputation by chained equations will be used. Sensitivity analyses will compare complete-case and imputed estimates, repeat analyses after excluding assessments affected by documented platform disruption, and assess results using screening events versus unique participants as the unit of description. The economic component will be presented as a prospective within-cohort cost-and-outcome analysis from health and social care and societal perspectives. EQ-5D-5L utilities will be used to estimate QALYs over observed follow-up, and the resource-use questionnaire will be used to estimate healthcare, social care, productivity and out-of-pocket costs. In the absence of a concurrent usual-care comparator, incremental cost-effectiveness ratios will not be estimated, and no causal cost-utility claim will be made. A comparative cost-utility analysis will be undertaken only if a separately specified, ethically and institutionally approved usual-care cohort with comparable eligibility criteria, measurement windows, and data is secured; we will prespecify its design, matching or adjustment strategy, and sensitivity analyses before accessing outcome data. Qualitative data from focus groups and semi-structured interviews will undergo thematic analysis. Reporting will follow COREQ, while implementation outcomes will be organised using Proctor *et al* framework.^{15,16}

e. Outcome measures

The primary outcome is screening completion at each scheduled assessment, calculated as the proportion of successfully delivered invitations that result in a completed EPDS among eligible enrolled participants. The programme targets completion rates of at least 60% in year 1 and 80% in year 2. This outcome measures implementation reach and uptake; it does not measure diagnostic accuracy or clinical effectiveness.

Secondary participant- and pathway-level outcomes are repeat-screening adherence; partial questionnaire completion; time from invitation to questionnaire completion; EPDS score at the operational pathway level; change in EPDS score and EQ-5D-5L utility over time; healthcare resource use; and, among participants requiring additional assessment, the proportions with documented clinical review, referral, scheduled follow-up and initiation of indicated psychological or psychiatric care, together with the time to each event. Clinical diagnoses, when recorded following professional assessment, will be reported separately from EPDS screening results.

Professional and system-level outcomes include the number and proportion of eligible professionals trained, training completion, attendance at multidisciplinary meetings, activation of the digital pathway within the electronic health record, and the proportion and timeliness of generated alerts reviewed by professionals. Qualitative outcomes include acceptability, appropriateness, feasibility, barriers, facilitators and adaptations identified through interviews and focus groups. Outcomes will be evaluated throughout the two-year implementation period, with the available follow-up duration reported for each cohort.

f. Ethical considerations

The ULSAC Ethics Committee approved the Matter programme under approval opinion number 20/CE/2023 on 19/01/2024. The programme protocol is published on ClinicalTrials.gov under registration number NCT07659977. Participation will be voluntary and subject to informed consent. The data collected through the assessment instruments, including sociodemographic and clinical information and scales, will be encrypted immediately after collection to ensure anonymity and confidentiality in processing all information gathered. The information collected will be treated confidentially and may be accessed by a restricted group of staff involved in this programme, strictly within the scope and for the purposes defined by their roles in this programme. All data, whether electronic or paper, will be protected, and access will remain restricted throughout the study. Measures will be taken to protect the data against accidental or unlawful destruction, accidental loss, alteration, unauthorised disclosure or unauthorised access. The data will be stored in secure servers and in physically secure rooms with restricted access. The Principal Investigator will retain the data for 10 years and submit all results obtained to the ULSAC Ethics Committee. After this period, or if a participant withdraws consent, we will permanently erase or destroy the data in a way that ensures it cannot be recovered. We will shred paper records using a machine and then store them securely. If consent is withdrawn, we will delete the data before processing. After processing, we will retain only non-identifiable data. Ownership and protection of participants' data, and the safeguarding of confidentiality, comply with the guidance document for conducting studies used by the ULSAC Ethics Committee, Portuguese clinical research legislation (Law No. 21/2014 of 16 April), and all applicable national and European legislation. Members of the Ethics Committee, as well as auditors working under the Principal Investigator's supervision, may consult the research data. Access to this information is governed by Law No. 73/2015 of 27 July. The ULSAC Data Protection Officer will ensure that the processing of personal data complies with applicable legislation.

Potential risks are expected to be limited but include emotional discomfort when answering sensitive questions, distress following an elevated result, false-positive or false-negative screening results, confidentiality or data-security breaches, delayed review of an alert, and identification of self-harm thoughts or severe psychopathology requiring urgent care. Participants may pause or stop a questionnaire and are informed that the EPDS is a screening tool, not a diagnosis. Any response other than 'never' to EPDS item 10 bypasses the total-score pathway and generates an immediate high-priority alert to the designated primary healthcare clinical team. The alert is reviewed on the same working day; responses submitted outside service hours are reviewed on the next working day, while the platform immediately displays instructions to contact emergency services (112) or the relevant urgent-care service if there is imminent danger. A trained clinician conducts and documents a direct suicide-risk assessment, including intent,

plan, means, protective factors and risk to the infant, and determines whether urgent psychiatric assessment, emergency referral, a safety plan or scheduled follow-up is required. Elevated total scores without item 10 endorsement prompt clinical assessment according to the operational pathway. All alerts, response times, actions and adverse events will be monitored. These procedures mitigate risk but do not eliminate the possibility of false reassurance after a false-negative result; participants are advised to seek clinical help whenever symptoms or safety concerns arise, regardless of score.

PLANNED IMPLEMENTATION INDICATORS AND EXPECTED OUTPUTS

The estimate of approximately 5600 screening assessment opportunities is based on about 1000 births per year, four planned assessment time points per participant and assumed completion of 60% in year 1 and 80% in year 2: $1000 \times 4 \times (0.60 + 0.80) = 5600$. These are assessment events, not unique participants. For planning purposes, a 20% prevalence of elevated depressive symptoms would yield approximately 1120 elevated screening events, broadly consistent with the prevalence literature.² This figure does not represent confirmed diagnoses, and repeated positive results from one participant may contribute more than one event. Because the available information does not support robustly estimating the distribution across the three operational pathway levels, we have removed the previous projections of 560 level-1 and 280 level-2/3 cases; we will report observed distributions with unique participants and repeated events clearly separated.

Within the training strand, we expect to identify approximately 540 potentially eligible professionals, including 405 in healthcare and 135 in the social care sector. The training programme is expected to include 324 professionals, corresponding to 60% of the total, and prepare them to work in perinatal mental health care and use the referral and patient-pathway system.

Within the multidisciplinary meetings strand, all trained professionals are expected to participate in at least one meeting, and 30% are expected to participate regularly. The minimum participation criterion is attendance at least six of the 20 planned meetings. For the digital platform, 100% of professionals involved in Matter strands 1 and 2 are expected to use it once, and 30% are expected to use it regularly, with access to individual data limited to professionals directly involved in managing each case.

These expected results will be monitored through data collection on pathways, referrals and platform use, as well as through interviews with participant and non-participant healthcare workers, to further identify barriers and facilitators to implementation.

DISCUSSION

The Matter programme seeks to address a functional gap between clinical recommendations, perinatal mental health needs, and the capacity for interservice coordination.^{1,3,5}

Its main contribution is to integrate screening, early intervention, training, multidisciplinary discussion and digital support into a single patient-centred pathway, focusing on continuity across primary healthcare, psychiatry and community structures.^{1,3,5}

The proposal is particularly relevant because perinatal mental health is recognised as a priority, yet referral and coordination may occur late or informally.^{3,5} The EPDS-based operational levels are intended to prompt proportionate clinical assessment and pathway actions, not to diagnose a disorder or replace professional judgement.⁶⁻⁸ Integrating Be a Mom at level 1 may broaden access to a flexible, low-cost preventive intervention for women with lower symptom scores.^{13,14} A distinguishing feature of Matter is its cross-cutting training of health and social care professionals.^{1,3,5} Situations involving greater clinical and social vulnerability require communication between multiple institutions. Training alone is therefore likely to be insufficient unless accompanied by integration mechanisms, support materials and regular case discussion. The monthly meetings will enable the programme to adapt to the real implementation context and will collect evidence on barriers, facilitators, and changes in professional behaviour related to the implementation process and use of the digital pathway system.

Indeed, the digital platform may increase the visibility of the service user's pathway, reduce information loss and support real-time recommendations. Implementation will require clear data governance, interoperability with existing clinical practices, rigorous definition of access levels, and close monitoring of user engagement. Data security and confidentiality will be a priority when implementing this protocol and crucial to the acceptability and sustainability of the Matter digital pathway and programme.

This study has several limitations. Screening, referral and engagement estimates depend on primary healthcare capacity, digital literacy, professional availability and institutional stability. Excluding women unable to read Portuguese or access an online questionnaire may underrepresent vulnerable groups; assisted in-person completion is intended to mitigate this limitation and will be monitored. The single-arm design has no concurrent comparator, so changes in symptoms, quality of life, service use or costs cannot be attributed causally to Matter. EPDS screening is also subject to false-positive and false-negative results and cannot substitute for diagnostic assessment. Attrition and missing repeated assessments may bias longitudinal estimates; therefore, we will report completion patterns and sensitivity analyses.

CONCLUSION

The Matter programme proposes an implementation protocol for training, screening and community intervention in perinatal mental health in Central Alentejo. By combining systematic screening, operational pathway allocation, professional training, integration of clinical and community care, and a digital platform, the programme aims to improve early identification, appropriate clinical review, referral

and continuity of care. If it demonstrates feasibility, acceptability and achievement of its implementation targets, it may inform the design and comparative evaluation of integrated perinatal mental health models in other settings.

AGRADECIMENTOS

Os autores gostariam de expressar a sua sincera gratidão ao Diretor do Departamento de Sistemas e Tecnologias de Informação da ULSAC pelo apoio prestado ao longo do desenvolvimento e da implementação deste projeto. Estendemos também o nosso agradecimento a todos os coordenadores das unidades de cuidados de saúde primários e das instituições do setor social envolvidas, cuja colaboração foi essencial para o sucesso deste trabalho. Por fim, estamos profundamente gratos a todas as mulheres participantes, cujas experiências, confiança e empenho refletem o esforço contínuo para construir um ambiente familiar saudável e acolhedor.

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PRÉMIOS E APRESENTAÇÕES PRÉVIAS

Este protocolo integra o Projeto Matter, financiado pela Fundação Calouste Gulbenkian. À data da submissão, apenas foi apresentado no XIX Congresso Nacional de Psiquiatria e no VI Congresso Anual do Grupo de Língua Portuguesa da Sociedade Marcé.

AWARDS AND PREVIOUS PRESENTATIONS

This protocol is part of the Matter Project, funded by the Calouste Gulbenkian Foundation. As of the date of submission, it had only been presented at the 19th National Congress of Psychiatry and the 6th Annual Congress of the Portuguese-Speaking Group of the Marcé Society.

RESPONSABILIDADES ÉTICAS

Conflitos de Interesse: Os autores declaram não haver quaisquer conflitos de interesse relacionados com o presente trabalho.

Fontes de Financiamento: O presente trabalho integra o Projeto Matter, financiado pela Fundação Calouste Gulbenkian.

Confidencialidade dos Dados: Os autores declaram que os procedimentos relativos à recolha, ao tratamento e à proteção dos dados pessoais cumprem os protocolos institucionais das entidades participantes, o Regulamento Geral sobre a Proteção de Dados (RGPD) e a legislação nacional aplicável. Todos os dados serão tratados de forma confidencial e pseudonimizados, com acesso restrito aos investigadores autorizados.

Proteção de Pessoas e Animais: O protocolo foi aprovado pela Comissão de Ética da Unidade Local de Saúde do Alentejo Central (Parecer n.º 20/CE/2023). Todos os procedimentos respeitam os princípios éticos da investigação clínica, a Declaração de Helsínquia da Associação Médica Mundial (revista em 2024), a legislação portuguesa aplicável e as normas de Boas Práticas Clínicas. A participação é voluntária e precedida da obtenção de consentimento informado.

Proveniência e Revisão por Pares: Não comissionado; revisão externa por pares.

ETHICAL RESPONSIBILITIES

Conflicts of Interest: The authors declare that there are no conflicts of interest related to this study.

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Data Confidentiality: The authors declare that the procedures regarding the collection, processing, and protection of personal data comply with the institutional protocols of the participating entities, the General Data Protection Regulation (GDPR), and applicable national legislation. All data will be treated confidentially and pseudonymized, with access restricted to authorized researchers.

Protection of People and Animals: The protocol was approved by the Ethics Committee of the Central Alentejo Local Health Unit (Opinion No. 20/CE/2023). All procedures comply with the ethical principles of clinical research, the World Medical Association's Declaration of Helsinki (revised in 2024), applicable Portuguese legislation, and Good Clinical Practice guidelines. Participation is voluntary and requires prior informed consent.

Peer Review: Not commissioned; external peer review.

DECLARAÇÃO DE CONTRIBUIÇÃO

TR, MG, CS: Conceptualização; Metodologia; Gestão do projeto; Supervisão; Obtenção de financiamento; Redação – rascunho original; Redação – revisão e edição.

TR, MG, CS, ARM: Conceptualização; Metodologia; Validação; Redação – revisão e edição.

TR, RR, ARM: Metodologia; Curadoria de dados; Investigação; Redação – revisão e edição.

TR, MG, CS, RR, ARM: Investigação; Implementação do projeto; Redação – revisão e edição.

Todos os autores revisaram criticamente e aprovaram a versão final do manuscrito e concordam em assumir a responsabilidade por todos os aspetos do trabalho.

CONTRIBUTORSHIP STATEMENT

TR, MG, CS: Conceptualization; Methodology; Project management; Supervision; Fundraising; Writing—original draft; Writing—revision and editing.

TR, MG, CS, ARM: Conceptualization; Methodology; Validation; Writing—revision and editing.

TR, RR, ARM: Methodology; Data curation; Research; Writing—review and editing.

TR, MG, CS, RR, ARM: Research; Project implementation; Writing—review and editing.

All authors critically reviewed and approved the final version of the manuscript and agree to take responsibility for all aspects of the work.

References

1. Earls MF; Committee on Psychosocial Aspects of Child and Family Health, American Academy of Pediatrics. Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. *Pediatrics*. 2010;126:1032-9. doi:10.1542/peds.2010-2348.
2. Wisner KL, Sit DKY, McShea MC, Rizzo DM, Zoretich RA, Hughes CL, et al. Onset timing, thoughts of self-harm, and diagnoses in postpartum women with screen-positive depression findings. *JAMA Psychiatry*. 2013;70:490-8. doi:10.1001/jamapsychiatry.2013.87.
3. National Institute for Health and Care Excellence. Antenatal and postnatal mental health: Clinical management and service guidance (CG192) London: NICE; 2014. [Accessed 7-7-2026] Available from: <https://www.nice.org.uk/guidance/cg192>
4. World Health Organization. WHO guide for integration of perinatal mental health in maternal and child health services. Geneva: World Health Organization; 2022. [Accessed 7-7-2026] Available from: <https://www.who.int/publications/i/item/9789240057142>
5. Cepêda T, Brito I, Heitor MJ. Promoção da saúde mental na gravidez e primeira infância: Manual de orientação para profissionais de saúde. Lisboa: Direção-Geral da Saúde; 2006.
6. BC Reproductive Mental Health Program, Williams J. Best practice guidelines for mental health disorders in the perinatal period. Vancouver: BC Reproductive Mental Health Program; 2014.
7. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry*. 1987;150:782-6. doi:10.1192/bjp.150.6.782.
8. Areias MEG, Kumar R, Barros H, Figueiredo E. Validation of the Edinburgh Postnatal Depression Scale in Portuguese mothers. *Br J Psychiatry*. 1996;169:30-5. doi:10.1192/bjp.169.1.30.
9. Stolk E, Ludwig K, Rand K, van Hout B, Ramos-Goñi JM. Overview, update, and lessons learned from the international EQ-5D-5L valuation work: Version 2 of the EQ-5D-5L valuation protocol. *Value Health*. 2019;22:23-30. doi:10.1016/j.jval.2018.05.010.
10. Ferreira PL, Pereira LN, Antunes P, Ferreira LN. EQ-5D-5L Portuguese population norms. *Eur J Health Econ*. 2023;24:1411-20. doi:10.1007/s10198-022-01552-9.
11. McCabe-Beane JE, Segre LS, Perkhounkova Y, Stuart S, O'Hara MW. The identification of severity ranges for the Edinburgh Postnatal Depression Scale. *J Reprod Infant Psychol*. 2016;34:293-303. doi:10.1080/02646838.2016.1141346.
12. Levis B, Negeri Z, Sun Y, Benedetti A, Thombs BD; DEPRESSION Screening Data (DEPRESSD) EPDS Group. Accuracy of the Edinburgh Postnatal Depression Scale (EPDS) for screening to detect major depression among pregnant and postpartum women: systematic review and meta-analysis of individual participant data. *BMJ*. 2020;371:m4022. doi:10.1136/bmj.m4022.
13. Carona C, Pereira M, Araújo-Pedrosa A, Canavarro MC, Fonseca A. The efficacy of Be a Mom, a web-based intervention to prevent postpartum depression: Examining mechanisms of change in a randomized controlled trial. *JMIR Ment Health*. 2023;10:e39253. doi:10.2196/39253.
14. Monteiro F, Pereira M, Canavarro MC, Fonseca A. Be a Mom's efficacy in enhancing positive mental health among postpartum women presenting low risk for postpartum depression: Results from a pilot randomised

- trial. *Int J Environ Res Public Health*. 2020;17:4679. doi:10.3390/ijerph17134679.
15. Proctor EK, Silmere H, Raghavan R, Hovmand P, Aarons G, Bunger A, et al. Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Health*. 2011;38:65–76. doi:10.1007/s10488-010-0319-7.
 16. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19:349–57. doi:10.1093/intqhc/mzm042.