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PROTOCOL/ PROTOCOLO

Implementing and Replicating Perinatal Mental Health Programs in Portuguese Public Hospitals: Protocol of a Pilot Program

Implementação e Replicação de Programas de Saúde Mental Perinatal em Hospitais Públicos Portugueses: Protocolo de um Programa Piloto

DENISE LEITE[1], CARLA SANTANITA[2], TERESA REIS[*1,3]
1. Departamento de Psiquiatria e Saúde Mental, Hospital do Espírito Santo, Évora, Portugal
2. Departamento da Mulher e da Criança, Hospital do Espírito Santo, Évora, Portugal
3. Comprehensive Health Research Centre (CHRC), Nova Medical School, Lisbon, Portugal

RESUMO

Introdução: A gravidez e o pós-parto são períodos de risco acrescido para o desenvolvimento ou exacerbação de doenças mentais. A prevenção do impacto e consequências da doença mental não tratada é fundamental, atendendo aos riscos para a mulher e para o bebé. Em Portugal, existe um número limitado de programas e projetos orientados para a intervenção neste período de vulnerabilidade. O programa de saúde mental perinatal cujo protocolo se apresenta foi concebido de forma a integrar cuidados de saúde mental perinatal num hospital público, através de um modelo piloto de abordagem para a deteção e prestação de cuidados adequados, específicos e atempados.
O objetivo foi escrever o desenho e metodologia de um programa de saúde mental perinatal implementado num hospital público em Portugal, e refletir sobre a sua replicabilidade no contexto do Serviço Nacional de Saúde.
Metodologia: Descrição dos dois eixos de implementação do programa. O eixo de rastreio compreende a utilização de instrumentos validados e realização de avaliação em três momentos distintos do período perinatal. O eixo de intervenção clínica compreende consultas individuais e sessões de grupo utilizando terapias de 3ª geração com recursos a plataformas *online*.
Resultados: O protocolo do programa propõe uma abordagem multidisciplinar da saúde mental perinatal, com impacto significativo na saúde mental das mães, bebé e famílias em (re)construção, bem como o estabelecimento e continuidade da prestação de cuidados específicos, com consequente melhoria do nível de satisfação para com os cuidados.
Conclusão: A limitação do número de programas e de recursos na área da saúde mental perinatal representa uma barreira à implementação de programas estruturados nesta área específica e de importância primordial. O presente protocolo pretende explanar a metodologia de implementação de um programa de saúde mental perinatal e trazer à reflexão a pertinência e exequibilidade da sua replicação noutros serviços do SNS.

ABSTRACT

Introduction: Pregnancy and postpartum are periods of increased risk for the development or exacerbation of mental disorders. Preventing the impact and consequences of untreated mental illness is essential, given the risks for the woman and the baby. In Portugal, there are a limited number of programs and projects oriented towards intervention in this period of vulnerability. The perinatal mental health program whose protocol is presented was designed to integrate perinatal mental health care in a public hospital, through a pilot model approach for the detection and provision of adequate, specific and timely care.
Our objective was to describe the design and methodology of a perinatal mental health program implemented in a public hospital in Portugal and reflect on its replicability within the National Health Service context.

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* Autor Correspondente/Corresponding Author: Teresa Alves dos Reis | treis@hevora.min-saude.pt | Comprehensive Health Research Centre (CHRC), Departamento de Psiquiatria e Saúde Mental, Hospital do Espírito Santo, Évora, Portugal

Methodology: The programs's axes of screening and clinical intervention are presented. The screening axis includes the use of validated instruments and assessment at three different moments of the perinatal period. The clinical intervention axis comprises individual consultations and group sessions using third-generation therapies with recourse to online platforms.
Results: The program protocol proposes a multidisciplinary approach to perinatal mental health, with a significant impact on the mental health of mothers, babies and families in (re)construction, as well as the establishment and continuity of specific care provision, with consequent improvement in the level of satisfaction towards care.
Conclusion: The limited number of programs and resources in the area of perinatal mental health represents a barrier to the implementation of structured programs in this specific area of paramount importance. This protocol aims to explain the methodology and feasibility of a perinatal mental health program and to reflect on the relevance and feasibility of its replication in other NHS services.

Palavras-Chave: Cuidados Perinatais; Mães/psicologia; Período Pós-Parto/psicologia; Saúde Mental; Saúde Pública

Keywords: Mental Health; Mothers/psychology; Perinatal Care; Postpartum Period/psychology; Public Health

INTRODUCTION

Mental illness can occur at any stage of an individual's life, but women are susceptible to an increased risk in periods of reproductive transition, such as during pregnancy and postpartum.[1,2] Epidemiological data show that the world-wide prevalence of mental illness in women during the perinatal period is significant. In the last decade, evidence surged regarding the impact of perinatal mental illness and is currently considered the leading undiagnosed obstetric complication,[3] with a prevalence rate between 5%-11% for depressive disorders in pregnancy[1,4–6] and 15% for anxiety disorders[1] in high-income countries. In the postpartum period, depressive disorder prevalence stands at 13%, and anxiety disorder circa 10%.[1,7]

In Portugal, few studies have been conducted on perinatal mental disorders, most of them with methodological limitations or small samples.[8–11] In 1996, a study with 54 women found a prevalence of depression during pregnancy of 16.7%, 31.5% at three months postpartum, and 53.7% at twelve months.[8] In the same year, another study with a larger sample (352 women) found a prevalence rate of 13.1% for postpartum depression.[9] Subsequent research found that 12.4% of women scored above the cut-off point on a perinatal mental health scale (Edinburg Perinatal Depression Scale (EPDS) $\geq$ 13 points) in the week following delivery, as 13.7% of women three months postpartum.[10] Research conducted in several countries revealed a prevalence rate of antenatal depression of 9.4% for Portuguese pregnant women.[11] In 2011, another study showed a prevalence rate of 1.3%-2.3% in pregnancy and 11.7%-16.6% in postpartum for perinatal depression.[12] A study published in 2022, reporting data concerning the impact of the pandemic COVID-19 on the mental health of pregnant women, found that 26.3% could experience depression.[6]

Preventing or mitigating harm due to untreated mental illness is critical given its risks to the woman, namely psychological suffering, loss of functionality, admission to a psychiatric ward or suicide, and obstetric complications such as pre-eclampsia, hemorrhage, preterm delivery, fetal growth restriction, low birth weight and stillbirth.[1,2,6,13,14] The infant after birth may also be affected if the mother is unwell, with impairments in establishing a secure attachment, in emotional self-regulation, as well as in cognitive development, given that these early life experiences impact the child's development and promote the development of pathology later in life.[3]

From an economic perspective, perinatal mental illnesses' consequences have been well documented. An economic report from the London School of Economics outlined that, in the UK, failure to address perinatal mental health problems costs approximately £8.1 billion for each one-year cohort of births, 72% of which is due to the longer term associated effects on child well-being.[15]

It is crucial to implement early screening of mental illness during pregnancy and postpartum, assess the risk of relapse among women with previously diagnosed severe mental illness, and consider the risk factors stemming from their pathology and the social and familial relations and conditions.[16] The World Health Organization (WHO) released a guide in 2022 for the integration of perinatal mental health in maternal and child health services, in which it is reinforced the importance of screening and giving support, and how services can provide mental health promotion, prevention, adequate treatment and care.[2]

The access and delivery of care in the field of perinatal psychiatry, varies by country, resulting in unequal provision of services to women. In the United Kingdom, for example, structures for access and care are well established in this field, with community-based perinatal mental health services and mother-baby units. The Scottish Perinatal Mental Health Care Pathways for example, provides access to specialized care through different pathways depending on the phase and severity of the cases encountered by general practitioners, family nurses, or social workers.[17]

The Portuguese Directorate-General for Health (DGS) issued standards for the promotion of mental health in pregnancy and early childhood, stating that early intervention in perinatal mental health is a priority.[18] These suggest screening perinatal mental health depression using the Edinburg Perinatal Depression Screening Scale (EPDS) both during

pregnancy and postpartum. Despite these proposals, this instrument is not generally available in the National Health Service online consultation software either in primary care or in hospital settings, and only a couple of programs targeting this period of vulnerability are available in our country.[19] We created a program aiming for the provision of perinatal mental health care at a public health sector context. It was designed to integrate perinatal mental health care into a public hospital, and bring awareness to this topic as a public health matter with significant unmet needs, serving also as a pilot model of approach to detect and provide specific and prompt care to women during this period.

a. Main goal

To describe the protocol and discuss the replication of a screening and early intervention perinatal mental health program in the setting of a public Portuguese hospital.

b. Secondary goals

To detail the methodology chosen to:

- Screen for anxiety and depression in pregnancy and early postpartum period.
- Characterize the perinatal mental health state of women having their pregnancy followed-up and delivered at a Portuguese hospital.
- Screen and identify perinatal mental health disorders and study their correlation with the population's psychosocial characteristics.
- Measure the impact of the implementation of our clinical intervention in the disorder follow-up.

To discuss the replicability of our perinatal mental health program.

MATERIAL AND METHODS

a. Design and setting

The setting is a hospital unit located in a rural region of Portugal, covering a territory of 7393 km^2 and serving a population between 152 515 and 704 707 inhabitants, including patients received from other areas.[20] Regarding obstetric consultations, in 2021 there were 2915 appointments in this hospital, of which 915 first consultations. In 2022, 1497 obstetric consultations were conducted until August, of which 450 were first consultations. Regarding deliveries at this hospital, 1000 were performed in 2021, and in 2022 a total of 1079.[21] Concerning specifically our target population, in the Department of Psychiatry and Mental Health 3518 women were followed in consultation in 2021, including 1281 at potential reproductive age (age between 16-50 years old).

b. Inclusion and exclusion criteria

All Portuguese speaking women with obstetric consultation, and those who give birth at this hospital unit, are admitted and screened, as are women that are already followed in psychiatric consultation. Any woman who, after the program's explanation, refuses to take part in this program will be excluded.

c. Intervention implementation

The program includes two distinct axes: screening and interventional clinical care. The first axis consists of the application of screening instruments and clinical assessment in three distinct stages of the perinatal period: pregnancy, the immediate postpartum period, and postpartum. The second axis addresses both women identified in the first axis and women with mental illness with moderate-to-severe symptoms pre-pregnancy and referred by the hospital's psychiatry and mental health department. This assessment and interventions are mediated by a team consisting of an attending psychiatrist, a psychiatry resident, a mental health specialized nurse, a psychologist, and a social worker.

d. Axis 1 – Screening

i. Screening in Pregnancy

Screening in pregnancy begins with the handout of a pamphlet and a self-assessment survey by the nursing team upon the first obstetric appointment. The pamphlet is titled "*Agora que está grávida... cuide da sua saúde mental"* (Now that you are pregnant... take care of your mental health), and it contains an overview of the epidemiology and symptoms of frequent mental disorders occurring in pregnancy and encourages women to report any symptoms of mental distress they may experience to their obstetrician. The questionnaire comprises sociodemographic questions and assesses potential risk factors for mental pathology, along with screening instruments focused on the more common disorders. We use the translated 7-item version of the Perinatal Depression Screening Scale (PDSS-7) for pregnancy[22,23] and the Edinburg Perinatal Depression Screening Scale (EPDS).[24,25]

ii. Screening in the early postpartum period

We approach every woman in the first 24-48 hours after birth, in their maternity room, and perform active listening and an early postpartum debriefing session. This session provides mental health support and brief psychoeducation on the most important and frequent mental health disorders during the perinatal period. We give each woman an informative pamphlet "*Agora que o bebé nasceu... cuide da sua saúde mental"* (Now that your baby is born... take care of your mental health), and a self-completion questionnaire in which they fill out their email address and authorize our team to use it to contact them. Women are also asked to reflect on their labor experience, fears, and anxiety regarding the beginning of motherhood. If any mental health concerns are perceived at this intervention, then a referral is made for further assistance.

iii. Screening in the later postpartum period

All the women surveyed at the maternity ward receive a new assessment of their mental state at five to six weeks postpartum through an online form, which is sent to the email address they provide in the questionnaire at the early postpartum session. This questionnaire contains

several questions about their well-being and first steps in parenthood, as well as instruments that assess mental health conditions, namely the PDSS-7 for postpartum and the EPDS.

iv. HelpLine

Each pamphlet handed out during the various stages of the program includes our program's email address, with the indication that should any symptoms or signs of mental health issues arise, this channel can be used to contact the PMH program team. The perinatal mental health team ensures to respond to these contacts within 48-72 hours and provide support, and referral either to the program or to another healthcare provider if appropriate, thus ensuring prompt assistance and continuity of their care.

e. Axis 2 - clinical intervention

Women with PDSS-7 for pregnancy with a score over 14, women with PDSS-7 for postpartum with a score over 16, as well as women with significant mental health suffering or probable mental health disorder, such as depression, anxiety or psychosis, despite an inferior score. Women with a previous diagnosis of a mental health disorder with moderate-to-severe symptoms are also referred to the clinical intervention axis of the PMH Program. A weekly meeting with all the members of the PMH team is conducted to discuss the patients, new admissions, project individual therapeutic plans, and address difficulties.

vi. Individual clinical consultation

The formal referencing is made through a specific referral request, where clinical data is included which is used by the PMH program team to make a preliminary analysis of the case, to verify the eligibility criteria and the intended purpose of the intervention, and to help prioritize the cases referred. All women with a probable diagnosis of a mental health disorder are then contacted by phone to further assess the need and urgency for an initial individual consultation, prioritizing based on the severity of their symptoms.

Upon integrating this axis, throughout pregnancy and/or postpartum, and according to a plan of care outlined, women are monitored by the PMH program team, through mental health appointments, in psychiatry and/or psychology, as well as through psychosocial support, including the promotion of personal empowerment and parenting strategies. Other healthcare providers involved in the clinical management of the women and baby, such as obstetricians, pediatricians, and primary healthcare doctors, are kept updated regarding the perinatal healthcare plan, particularly in situations involving the administration of psychopharmaceuticals during pregnancy and breastfeeding.

Screening instruments, specifically the EPDS and PDSS, are applied at the first individual consultation of the program, as well as in the consultations held at the second, fourth and sixth months after the program admission so that an evolutive/comparative analysis can be performed.

vii. Brief interventional consultation

This intervention consists of group consultation, during which participants address the challenges and concerns regarding their mental health and motherhood. Women are referred to attend after being evaluated in the individual consultation of the PMH program. It aims to be a therapeutic and empowering intervention, designed to validate and normalize the experiences of the participating women. It is a weekly intervention, divided into two groups (pregnancy and postpartum), held through a videoconferencing platform. The sessions are facilitated by the program's team members, qualified in group moderation, and have a minimum of three participants and a maximum of ten, with a duration of 90 minutes. Since it is an open session, patients can choose to attend a single meeting or to continue attending until they feel that they have overcome their problems or until discharge is indicated.

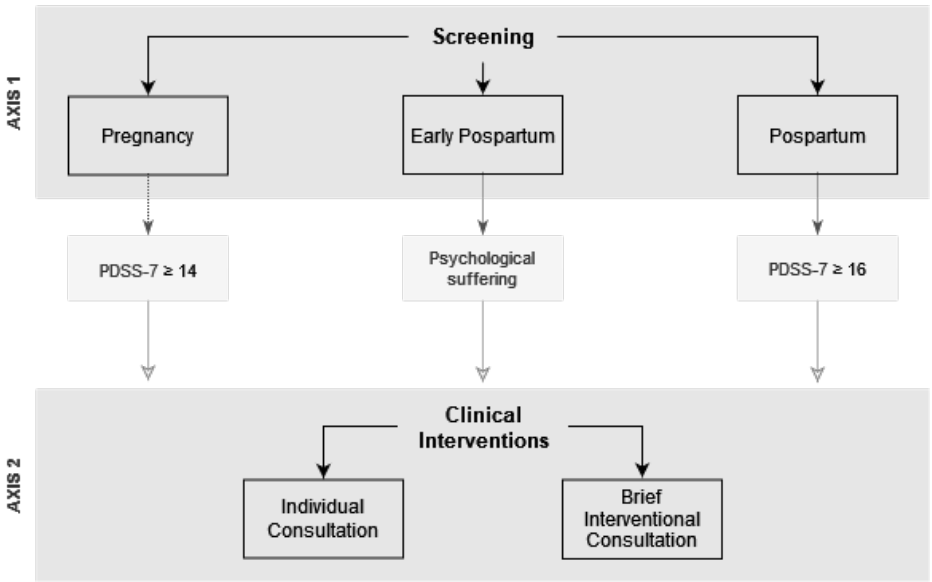

Figure 1. Outline of the axes and implementation at the various stages.

INSTRUMENTS AND VARIABLES

a. Quantitative

To perform a sociodemographic characterization of our population, we ask participants the following variables: age, exact perinatal period (weeks of gestation or postpartum), nationality, area of residence, with whom they live, marital status, education level, and work situation.

To clinically characterize each participating woman, or patient, we ask for the following obstetric variables: number of previous pregnancies, number of children, pregnancy loss, history of prematurity of prior children, whether the pregnancy was desired and/or planned, the existence of smoking habits, and the existence of previously known mental health disorders. For women in the postpartum period, we also ask the following variables: whether they had an adequate number of obstetrics appointments during pregnancy, the type of delivery, the baby's weight at delivery, the type of baby feeding, if there were complications in pregnancy and the existence and type of informal and/or formal support.

In our screenings, we apply the Postpartum Depression Screening Scale (PDSS) and the Edinburgh Postnatal Depression Scale (EPDS). Their use was based on the need for a rapid screening instrument that provides recognition of mental illness in this period.[26]our gold standards for caseness. PDSS reliability and validity were very good and equivalent to those reported in other versions, including the original. PDSS was an accurate screening instrument for postpartum depression, showing satisfactory combination of sensitivity and specificity (>80 The PDSS scale is a validated disorder screening test that assesses the presence and severity of symptoms of perinatal depression.[27] It presents excellent psychometric and operative properties,[28]to analyse their psychometrics and to determine their cut-off points and associated conditional probabilities to screen for perinatal depression according to DSM-IV and ICD--10 criteria. In this study, 441 women in the third trimester of pregnancy and 453 in the third month of postpartum were interviewed for diagnostic purposes according to the Portuguese versions of the Diagnostic Interview for Genetic Studies and the Operational Criteria Checklist for Psychotic Illness. DSM-IV and ICD-10 classifications of depression were our gold standards for caseness. Three different shorter forms of the original Portuguese version of the PDSS were developed on the basis of reliability and factorial analysis. PDSS short versions, composed of seven and 21 (postpartum superior to other scales, it is easy and quick to complete, and therefore chosen as a referencing tool. The EPDS scale is a recommended instrument for screening perinatal depression[29] and is used worldwide, thus enabling easy correlation and comparison of evidence with preceding studies and literature.

We apply the EPDS and the PDSS-7 during the pregnancy and postpartum screening (axis 1 of the PMH program) and also at the clinical intervention axis (axis 2) at the initial, two-, and six-months individual appointments.

The PDSS is a self-response scale, administered through a Likert scale,[27] with only 7 items, one from each dimension assessed: sleep/eating disorders, anxiety/insecurity, emotional lability, mental confusion, loss of self, guilt/shame, and suicidal thoughts. It presents superior combinations of sensitivity and specificity, with lower false positive and false negative rates than other scales and can be completed in 5-10 minutes.[27,28] The EPDS is a self-completion scale with worldwide use, requires 5-10 minutes to complete, and evaluates through 10 items how the women felt in the last 7 days, with a score that can go from 0 to 30 points, with a cut-off of 12 points or more indicating possible depressive pathology.[24,30]

b. Qualitative

In the questionnaire applied during the immediate postpartum period, we used open questions to ask women to describe their childbirth experience, focusing on their emotional experience, deeper feelings, and possible fears related to the postpartum period. In the questionnaire applied at five to six weeks, we used an open question to ask about their emotional experience in the postpartum period.

RESULTS

The program has successfully been implemented since January 2022 using the previously detailed methodology. In the first year, the implementation team performed 976 screenings and 1103 clinical interventions. The detailed results of the program implementation will soon be ready for publication.

DISCUSSION

Perinatal mental health disorders constitute a public health problem. Appropriate intervention and support in the perinatal period allows for a reduction in morbidity, a probable full recovery of these women, and a reduction in additional health care expenses, considering the early impact of the negative vicious cycle of mental health disorders in families.[31] In this context, it is crucial to test the implementation and feasibility of programs that provide adequate care.

The implementation of our perinatal mental health program, especially in a country with severe unmet needs in this area, aims to provide proper clinical support. By fostering maternal wellbeing, we promote a healthy mother--baby attachment and thus averting potential development problems in the child, addressing public health interests.

Concerning the specific components of our intervention, we chose to screen women in three different moments (pregnancy, immediate postpartum and later postpartum) to ensure equitable access to the program since it is frequent for women to have most of their pregnancy follow-up in the private sector. Screening in the postpartum relates to the etiology of these pathologies, with onset shortly after childbirth and increasing incidence until approximately 4-6 weeks postpartum.[1]

Regarding the individual clinical consultation intervention, this component allows for an in-depth characterization of the clinical follow-up of mental disorders in this specific period in a region of Portugal. The brief interventional consultation enables close and frequent monitoring, being cost-effective

for both professionals and included participants, given that it is an online group intervention. The use of e-treatments facilitates integrated care and engagement,[1] as it is more respectful of the perinatal period. This resource allowed us to support a significant number of women who were located far from our care area, including those in other districts, ensuring proper care and continuous support and follow-up.
Studies characterizing the country's panorama regarding this subject are limited and fail to reflect the totality of women, especially those from rural settings covered by this program. The collection of quantitative data enabled by this program, particularly in terms of sociodemographic characterization and its correlation with scores from EPDS and PDSS, can prove to be an asset in characterizing the prevalence of mental pathology in the perinatal period, as well as in identifying risk factors associated with this condition. The qualitative data, more specifically during the postpartum period, provides an assessment of the woman's experience through her perspective, clarifying and delving into her perceptions and revealing possible stressors that have not been considered until now.
We expect some limitations in this program. Not every woman is monitored at the public hospital during pregnancy, some women choose not to undergo our intervention or further contact after delivery, thus limiting their access to the postpartum screening. Even when they accept to be contacted in the later postpartum period, we expect that a significant percentage will not answer the questionnaire that is sent to their email address or may be subjected to self-bias to avoid a diagnosis out of fear of stigma. One way to overcome these difficulties is to extend screening to primary health care. The use of validated instruments for screening aimed at the perinatal period in primary health care units, and clinical assessment by general practitioners throughout pregnancy and postpartum, would enable the identification of potential issues in more women, whose referrals would be based on similar criteria to those described in this program.
Another limitation is that the program only provides care to women. Since psychiatric disorders affect about 10% of fathers during the perinatal period,[32] screening and clinical intervention would be beneficial, however, due to our limited resources at the time, this population was not addressed. The integration and thoughtful approach to non-heteronormative couples is also significant and is being actively pursued and developed.
Finally, a noteworthy aspect is the program's potential for replication. The program was built upon a straightforward methodology that necessitates minimal resources, since the initial implementation was carried out by a psychiatrist with specific perinatal mental health training, and a mental health nurse. Hence, acquiring the necessary materials and directing adequate human resources to replicate this program in other healthcare centers would not pose a significant challenge.
In conclusion, we expect the detailed description of our protocol to advocate that the integration of a perinatal mental health program in maternal care would be largely accepted and welcomed despite possible challenges. The fulfillment of the proposed objectives may indicate that a structured program with an integrated methodology based on innovative, yet limited resources, may result in a model that can be replicable in any other settings.

RESPONSABILIDADES ÉTICAS

Conflitos de Interesse: Os autores declaram a inexistência de conflitos de interesse na realização do presente trabalho.
Fontes de Financiamento: Não existiram fontes externas de financiamento para a realização deste artigo.
Confidencialidade dos Dados: Os autores declaram ter seguido os protocolos da sua instituição acerca da publicação dos dados de doentes.
Proteção de Pessoas e Animais: Os autores declaram que os procedimentos seguidos estavam de acordo com os regulamentos estabelecidos pela Comissão de Ética responsável e de acordo com a Declaração de Helsínquia revista em 2024 e da Associação Médica Mundial.
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ETHICAL DISCLOSURES

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Confidentiality of Data: The authors declare that they have followed the protocols of their work center on the publication of data from patients.
Protection of Human and Animal Subjects: The authors declare that the procedures followed were in accordance with the regulations of the relevant clinical research ethics committee and with those of the Code of Ethics of the World Medical Association (Declaration of Helsinki as revised in 2024).
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DECLARAÇÃO DE CONTRIBUIÇÃO

DL e CS: Conceberam e desenharam o protocolo
TR: Contribuiu na concepção, desenho do protocolo e coordenou o processo de implementação
Todos os autores contribuíram para a redação do manuscrito, refinaram o protocolo do estudo e aprovaram o manuscrito final.

CONTRIBUTORSHIP STATEMENT

DL and CS: Conceived and designed the protocol
TR: Conceived, designed the protocol and coordinated the implementation process
All authors contributed to drafting the manuscript, refined the study protocol and approved of the final manuscript.

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