Check for updates

BRIEF REPORT

REVISED Collaborative development of a scoping review protocol to map instruments assessing the parent–infant relationship: An International Initiative from COST Action TREASURE

[version 2; peer review: 2 approved]

Sónia Brandão[1,2], Anat Talmon[3], Ewa Gieysztor[4], Patrícia Souto[1,2], Andreia Soares Goncalves[2,5,6], Rosa Silva[1,2], Patrícia Gonçalves[1,2], Paula Prata[1,2], Özlem Şensoy[7], Esra Ardahan Akgül[8], Semra Pinar[9,10], Kristiina Uriko[11], Seda Ardahan Sevgili[12], Elif Bulut[13], Rajesh Shigdel[14], Demet Gülaldı[15], Otília Freitas[16], Aycin Ezgi Onel[12], Pelin Dikmen-Yildiz[17], Carmen Power[18], Alena Lochmannová[19], Dora d'Orsi[20], Özlem Koç[21], Tuğçe Sönmez[21], Tânia Brandão[20], Diana Azevedo[22], Lence Miloseva[23], Edanur Tar Bolacali[24], Bahar Aksoy[25], Mirlinda Markaj[26], Gilberta Sousa[16], Burcu Kömürcü Akik[27], Nicola Carone[28], Pinar Gencpinar[29], Ayça Demir Yıldırım[30], Hazal Özdemir Koyu[31], Wilson Abreu[1,2], Tuğba Yılmaz Esencan[30], Margarida Reis Santos[2], Mario Santos[32,33], Remziye Can[34], Anna-Lena Zietlow[35], Rafael Caparros-Gonzalez[36,37]

[1]Nursing School of the University of Porto, Porto, 4200-072, Portugal
[2]RISE-Health, Nursing School of the University of Porto, Porto, 4200-072, Portugal
[3]Paul Baerwald School of Social Work and Social Welfare, Jerusalem, Jerusalem District, Israel
[4]Faculty of Physiotherapy, Wroclaw Medical University, Wrocław, Poland
[5]Polytechnic Institute of Viana do Castelo School of Health, Viana do Castelo, Viana do Castelo District, Portugal
[6]Health Sciences Research Unit, Nursing UICISA: E, Coimbra, Portugal
[7]Department of Pediatric Nursing, Istanbul University, School of Nursing, Istanbul, Turkey
[8]Izmir Katip Çelebi University, Faculty of Health Sciences, Department of Pediatric Nursing, Izmir, Turkey
[9]Department of Midwifery, Faculty of Health Sciences, Kahramanmaraş Sütçü Imam University, Kahramanmaraş, Turkey
[10]School of Psychology, Faculty of Medicine and Health, University of Leeds, Leeds, England, UK
[11]Department of Psychology and Behavioral Sciences, School of Natural Sciences and Health, Tallinn University, Tallinn, Estonia
[12]Ege University, Nursing Faculty, Department of Pediatric Nursing, İzmir, Turkey
[13]Tokat Gaziosmanpasa University, Faculty of Health Sciences, Department of Nursing, Child Health Nursing, Tokat, Turkey
[14]Department of Global Public Health and Primary Care, University of Bergen, Alrek helseklynge, blokk D, Årstadveien 175009, Bergen, Norway
[15]Department of Child Development, Uskudar University, Faculty of Health Science, Istanbul, Turkey
[16]RISE-HEALTH-UMa, RISE-HEALTH-UMa ; Escola Superior de Saúde da Universidade da Madeira, Funchal, Portugal
[17]Department of Psychology, Kirklareli University, Kirklareli, Turkey
[18]Independent Psychologist, Researcher, Educator, Consultant, Bristol, UK
[19]Department of Infectious Diseases and Travel Medicine, Faculty of Medicine in Pilsen, Charles University, Pilsen, Czech Republic
[20]William James Center for Research, Ispa–Instituto Universitário, Rua Jardim do Tabaco, 34, 1149-041 Lisbon, Portugal, Lisbon, Portugal
[21]Department of Midwifery, Tarsus University, Faculty of Health Sciences, Tarsus, Mersin Province, Turkey
[22]ICVS/3B's – PT Government Associate Laboratory, Braga/Guimarães, Portugal
[23]Department of Neuropsychiatry and Clinical Psychology, Faculty of Medical Sciences, Goce Delcev University Stip, Shtip, North

Macedonia
[24]Department of Pediatric Nursing, Kirsehir Ahi Evran University, Faculty of Health Sciences, Kırşehir, Turkey
[25]Department of Pediatric Nursing, Akdeniz University, Kumluca Faculty of Health Sciences, Antalya, Turkey
[26]Department of Health Psychology, Comenius University in Bratislava, Faculty of Social and Economic Sciences, Bratislava, Bratislava Region, Slovakia
[27]Department of Psychology, Ankara University, Faculty of Languages and History-Geography, Ankara, Turkey
[28]Department of Systems Medicine, University of Rome Tor Vergata, Rome, Italy
[29]Department of Pediatric Neurology, Izmir Katip Celebi University Neuroscience Center, Izmir, İzmir, Turkey
[30]Department of Midwifery, Uskudar University, Faculty of Health Sciences, Istanbul, Turkey
[31]Gazi University, Nursing Faculty, Department of Pediatric Nursing,, Ankara, Turkey
[32]CARE - Research Center on Health and Social Sciences, Polytechnic Institute of Portalegre, Lisbon, Portugal
[33]Iscte - Instituto Universitário de Lisboa, Portalegre, Portugal
[34]Mustafa Kemal Atatürk Vocational and Technical High School, Eskişehir, Turkey
[35]Faculty of Psychology, Clinical Child and Adolescent Psychology, Dresden University of Technology, Dresden, Germany
[36]Instituto de Investigación Biosanitaria Ibs, Granada, Spain
[37]Departamento de Enfermería, Facultad de Ciencias de la Salud, Universidad de Granad, Granada, Spain

v2 **First published:** 19 Dec 2025, **5**:394
https://doi.org/10.12688/openreseurope.21700.1
Latest published: 16 Jan 2026, **5**:394
https://doi.org/10.12688/openreseurope.21700.2

Abstract

Early relational health during the first 24 months of life is a key determinant of child development and wellbeing. During this postnatal period, the parent–infant relationship plays a central role in emotional regulation, bonding, and developmental trajectories. Although the broader early relational health framework encompasses the first 1,000 days of life, this scoping review focuses specifically on the postnatal phase, where parent–infant interactions are directly observable and measurable. However, existing assessment instruments vary widely in their conceptual focus, scope, and characteristics, and no comprehensive review has systematically mapped tools used to assess the parent–infant relationship during early infancy. In response to this gap, a transdisciplinary working group within the COST Action CA22114 – TREASURE collaboratively developed a scoping review protocol to systematically map instruments assessing the parent–infant relationship from birth to 24 months of age. This Brief Report describes the collaborative methodological process underpinning the protocol's development. The process followed an iterative, consensus-driven approach involving multidisciplinary experts from multiple COST member countries. Through structured online meetings, the group clarified core constructs and established the age range using the Population–Concept–Context (PCC) framework. The JBI methodology for scoping reviews was adopted and aligned with PRISMA-ScR standards to ensure transparency and reproducibility. Progressive drafting, internal peer review, and iterative refinement led to the final

Open Peer Review

Approval Status ✓ ✓

	1	2
version 2 (revision) 16 Jan 2026	✓ view	
version 1 19 Dec 2025	? view	✓ view

1. **Valentina Lucia La Rosa**, University of Catania, Catania, Italy

2. **Dean McDonnell**, South East Technological University, Waterford, Ireland

Any reports and responses or comments on the article can be found at the end of the article.

protocol, which was registered on the Open Science Framework (DOI: 10.17605/OSF.IO/HRVX9).The resulting protocol provides a replicable methodological framework for mapping instruments that assess the parent–infant relationship in the first two years of life. This Brief Report presents a framework for collaborative protocol development in international research networks, promoting shared knowledge generation in early relational health research and offering potential applicability to other COST initiatives.

Plain Language Summary

This article explains how an international team of researchers worked together to create a structured plan (protocol) for a scoping review, a type of research review that maps existing evidence. The aim of this review is to identify and describe the tools used to assess the relationship between parents and their babies during the first two years of life, a crucial period for emotional bonding, development, and long-term health. Experts from different countries within the COST network collaborated step by step to define key concepts, agree on suitable methods, and design a clear and transparent protocol. This protocol will guide a future scoping review that will identify and map all instruments used to evaluate the parent–infant relationship. The findings will help healthcare professionals, researchers, and policymakers better understand the range and characteristics of available instruments, supporting informed decisions about their use in promoting early relational health.

Keywords
parent–infant relationship; early relational health; scoping review; methodological framework; collaborative research; international collaboration; COST Action

This article is included in the COST Actions gateway.

This article is included in the Maternal Perinatal Stress collection.

Corresponding author: Sónia Brandão (soniabrandao@esenf.pt)

Author roles: Brandão S: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Talmon A**: Writing – Review & Editing; **Gieysztor E**: Writing – Review & Editing; **Souto P**: Writing – Original Draft Preparation, Writing – Review & Editing; **Soares Goncalves A**: Writing – Original Draft Preparation, Writing – Review & Editing; **Silva R**: Writing – Original Draft Preparation, Writing – Review & Editing; **Gonçalves P**: Writing – Original Draft Preparation, Writing – Review & Editing; **Prata P**: Writing – Original Draft Preparation, Writing – Review & Editing; **Şensoy Ö**: Writing – Review & Editing; **Ardahan Akgül E**: Writing – Review & Editing; **Pinar S**: Writing – Review & Editing; **Uriko K**: Writing – Review & Editing; **Ardahan Sevgili S**: Writing – Review & Editing; **Bulut E**: Writing – Review & Editing; **Shigdel R**: Writing – Review & Editing; **Gülaldı D**: Writing – Review & Editing; **Freitas O**: Writing – Review & Editing; **Onel AE**: Writing – Review & Editing; **Dikmen-Yildiz P**: Writing – Review & Editing; **Power C**: Writing – Review & Editing; **Lochmannová A**: Writing – Review & Editing; **d'Orsi D**: Writing – Review & Editing; **Koç Ö**: Writing – Review & Editing; **Sönmez T**: Writing – Review & Editing; **Brandão T**: Writing – Review & Editing; **Azevedo D**: Writing – Review & Editing; **Miloseva L**: Writing – Review & Editing; **Tar Bolacali E**: Writing – Review & Editing; **Aksoy B**: Writing – Review & Editing; **Markaj M**: Writing – Review & Editing; **Sousa G**: Writing – Review & Editing; **Kömürcü Akik B**: Writing – Review & Editing; **Carone N**: Writing – Review & Editing; **Gencpinar P**: Writing – Review & Editing; **Demir Yıldırım A**: Writing – Review & Editing; **Özdemir Koyu H**: Writing – Review & Editing; **Abreu W**: Writing – Review & Editing; **Yılmaz Esencan T**: Writing – Review & Editing; **Reis Santos M**: Writing – Review & Editing; **Santos M**: Writing – Review & Editing; **Can R**: Writing – Review & Editing; **Zietlow AL**: Writing – Review & Editing; **Caparros-Gonzalez R**: Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: This project has received funding from the European Union's Framework Programme for Research & Innovation as part of the COST Action (CA22114: TREASURE: Maternal Perinatal Stress and Adverse Outcomes in the Offspring: Maximising infant´s development), as supported by the COST Association (European Cooperation in Science and Technology).
The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Copyright: © 2026 Brandão S *et al*. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Brandão S, Talmon A, Gieysztor E *et al.* **Collaborative development of a scoping review protocol to map instruments assessing the parent–infant relationship: An International Initiative from COST Action TREASURE [version 2; peer review: 2 approved]** Open Research Europe 2026, **5**:394 https://doi.org/10.12688/openreseurope.21700.2

First published: 19 Dec 2025, **5**:394 https://doi.org/10.12688/openreseurope.21700.1

REVISED **Amendments from Version 1**

This revised version addresses the reviewers' comments by strengthening the conceptual clarity, methodological justification, and applied relevance of the manuscript, while preserving its original scope and aims.

First, the Introduction has been refined to more clearly distinguish key constructs related to the parent–infant relationship, including bonding, attachment, interaction, and responsiveness. We now explicitly describe how these constructs were discussed during the early consensus-building stages and clarify how conceptual overlaps will be handled during data extraction and synthesis in the forthcoming scoping review.

Second, the rationale for focusing on the first 24 months of life has been expanded. The revised text provides a clearer developmental justification for this cutoff, linking it to critical postnatal transitions such as the consolidation of attachment patterns, increasing infant autonomy, and changes in interactional modalities. We also clarify the relationship between the broader "first 1,000 days" framework and the specific postnatal focus of this protocol.

Third, the manuscript more clearly positions the protocol in relation to existing reviews by emphasising its novelty as a comprehensive mapping of instruments across relational constructs within a defined developmental window, rather than focusing on isolated dimensions.

Fourth, the Discussion has been strengthened to better articulate the implications of mapping assessment instruments for early intervention, prevention, and evidence-informed practice. We also explicitly acknowledge the relevance of embodied and interaction-based dimensions of early relationships, while clarifying that vulnerable populations such as preterm infants fall outside the scope of the present protocol and represent an important direction for future research.

Finally, Figure 1 and its caption were expanded to more clearly distinguish standard scoping review development phases from network-specific collaborative elements.

Any further responses from the reviewers can be found at the end of the article

Introduction

Early childhood development is widely recognised as a global public health priority, aligned with the Sustainable Development Goals and the Convention on the Rights of the Child. The first 1,000 days of life, from conception to a child's second birthday, represent a critical period of rapid brain growth and heightened neuroplasticity (Berg, 2016; Scher, 2024; Wardoyo *et al.*, 2024). Within this broad framework of early childhood development, increasing attention has been directed towards early relational health, the quality of early caregiving relationships that form the foundation for emotional, social, and cognitive development. During this time, interactions between infants and their primary caregivers shape neurocognitive, socioemotional, and self-regulatory development, with long-term implications for physical and mental health (Black & Merseth, 2018; Scher, 2024). Nurturing and responsive caregiving environments promote adaptive developmental trajectories, whereas adverse or disrupted early relationships may contribute to stress dysregulation and increased vulnerability to later mental health difficulties (Bhamani *et al.*, 2023).

Parental mental health during the perinatal period, particularly elevated stress, anxiety or depressive symptoms, can significantly influence how parents adapt to their new relational roles after birth (Aktar *et al.*, 2019; Stein *et al.*, 2014). Stress-related physiological changes, such as hormonal, inflammatory, and neuroendocrine alterations, may not only affect pregnancy outcomes, including preterm birth or low birth weight, but also shape the conditions under which early parent–infant bonding begins (Wardoyo *et al.*, 2024). These influences extend beyond individual parental wellbeing, affecting the quality of early interactions and the foundations of the parent–infant relationship in the postnatal period. The COST Action CA22114 – Maternal Perinatal Stress and Adverse Outcomes in the Offspring: Maximising Infants' Development (TREASURE) was established to address these challenges by integrating a multidisciplinary European network to explore strategies that mitigate the effects of perinatal stress and promote early relational health. Within this framework, the parent–infant relationship is recognised as a key mediator linking perinatal stress with developmental outcomes (Fredriksen *et al.*, 2019; Kim *et al.*, 2016). Sensitive and attuned interactions support secure attachment and healthy development, while disruptions in these relationships are linked to poorer outcomes (Korom & Dozier, 2021; Wardoyo *et al.*, 2024). Accordingly, international health and research agendas increasingly recommend the systematic assessment of the parent–infant relationship within perinatal and early childhood care to support early identification of relational risk and timely intervention (Bhamani *et al.*, 2023).

Several instruments have been developed to assess aspects of the parent–infant relationship, including bonding (e.g., Postpartum Bonding Questionnaire; Brockington *et al.*, 2006), attachment (e.g., Maternal Postnatal Attachment Scale; Condon & Corkindale, 1998), and interactional quality (e.g., Parent–Child Early Relational Assessment; Clark, 1999; Parent–Infant Interaction Observation Scale; Svanberg *et al.*, 2013). (e.g., Parent–Child Early Relational Assessment; Parent–Infant Interaction Observation Scale). However, existing measures differ widely in their conceptual focus, psychometric properties, and intended applications. Despite growing global interest, no scoping review to date has systematically mapped instruments that assess the parent–infant relationship specifically within the first 24 months of life.

The focus on the postnatal period up to 24 months is developmentally grounded, as this timeframe encompasses key transitions including the consolidation of attachment patterns, increasing infant autonomy, and qualitative changes in interactional modalities, all of which are central to early relational health. This Brief Report outlines the collaborative and transnational methodological process that guided the development of the scoping review protocol, offering a structured framework for evidence mapping within multidisciplinary international research networks. Its primary aim is to document the key steps and collaborative mechanisms that informed the protocol's design.

Methods

This Brief Report describes the collaborative process through which the scoping review protocol was developed within the COST Action CA22114. The methodological process followed distinct, iterative phases, detailed below.

a) Collaborative framework design

The protocol was developed within Working Group 4.3 (WG4.3) of COST Action CA22114 – TREASURE, a multidisciplinary international research network addressing perinatal stress and early developmental outcomes. WG4.3 included researchers and clinicians from different countries participating in the Action, with expertise in maternal and child health nursing, midwifery, psychology, psychiatry, paediatrics, developmental sciences, and perinatal mental health. The development adopted a collaborative and transdisciplinary approach that integrated diverse professional perspectives, resulting in an internationally applicable and methodologically robust protocol.

b) Consensus development process

The scoping review topic was identified through structured discussions held during early WG4.3 meetings, where members highlighted the need to map existing instruments assessing the parent–infant relationship. A structured consensus-building process was adopted, involving iterative online deliberations via a videoconferencing platform. During guided discussions, the group clarified conceptual boundaries (e.g., relationship, bonding, attachment, interaction, responsiveness) and discussed how conceptual overlap between these constructs would be addressed during data charting and synthesis. The group agreed to focus on instruments applicable to infants aged 0–24 months. The scope was defined using the Population–Concept–Context (PCC) framework recommended by the JBI (Peters *et al.*, 2024): opulation = infants aged 0–24 months and their parents; Concept = instruments assessing the parent–infant relationship; Context = any setting, without geographical or clinical restrictions. Consensus was achieved through iterative negotiation and member validation at each stage.

c) Methodological alignment and search strategy development

The JBI methodology for scoping reviews was adopted due to its suitability for mapping emerging evidence without restricting study design (Peters *et al.*, 2024). The protocol was aligned with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) to ensure transparency and reproducibility (Tricco *et al.*, 2018).

The search strategy was collaboratively developed by the research team with methodological input from a health sciences librarian experienced in evidence synthesis. Guided by the PCC framework, keyword clusters were generated using both free-text terms and controlled vocabulary (e.g., MeSH in PubMed, Emtree in Embase). Iterative pilot searches in PubMed were conducted to refine term relevance, sensitivity, and specificity. Boolean logic (OR within clusters and AND between clusters) was applied to construct the final strategy. All keyword iterations and database-specific strings were documented to support transparency and replicability. The final search strategy was endorsed through group consensus before being incorporated into the registered protocol.

d) Protocol development phases

Protocol drafting followed an iterative co-construction process using a shared online document platform, enabling simultaneous contributions and asynchronous revisions. The initial sections were developed using the JBI template and refined through structured internal feedback cycles. Special attention was given to clarifying operational definitions, eligibility criteria, and the overall methodological flow. Once full agreement was achieved, the protocol was registered on the Open Science Framework (OSF) (DOI: 10.17605/OSF.IO/HRVX9), ensuring transparency, traceability, and alignment with the open science principles that underpin COST-funded collaborations.

e) Tools and platforms

A range of digital tools supported the collaborative development process. An online videoconferencing platform was used for synchronous consensus meetings, while a shared online document platform enabled iterative drafting and real-time commentary. Spreadsheet software facilitated initial screening tests and the organisation of database structures. Covidence was selected for the dual-reviewer screening workflow due to its structured interface for title, abstract, and full-text assessment. The OSF served as the public repository for protocol registration and documentation of methodological decisions, reinforcing transparency and adherence to open research principles.

f) Pilot testing of screening procedures

A pilot validation exercise was conducted during the protocol development phase to ensure the clarity, feasibility, and consistency of the proposed screening tools and procedures. This pre-test did not constitute formal screening, but rather simulated the title and abstract screening process using a small, random subset of search results to verify the applicability of the PCC framework and to promote inter-reviewer alignment. Each reviewer independently applied the title and abstract screening tool (phase 1) to identify potential ambiguities and ensure shared understanding of inclusion and exclusion criteria.

Findings from this pre-test were discussed in a consensus meeting, leading to the refinement of the screening criteria and clarification of decision rules. Based on collective feedback, the title and abstract screening tool (phase 1) was revised, and a full-text screening tool (phase 2) was developed for use in the subsequent implementation of the scoping review.

This structured and iterative validation process strengthened the internal consistency and usability of the protocol and ensured methodological readiness for the forthcoming scoping review. Collectively, these steps illustrate a rigorous and transparent process of protocol development that underpins the collaborative framework described next.

Results

Results – Output of the collaborative process

The collaborative work of WG4.3 culminated in the articulation of a structured collaborative workflow that captures the stages, roles, and decision-making processes involved in the development of the scoping review protocol. This framework integrates the agreed conceptual parameters (PCC), methodological alignment with JBI and PRISMA-ScR guidance, and the collaborative mechanisms that guided protocol construction. Rather than presenting empirical results, this output represents the methodological product of the collaborative process,

reflecting a transparent and consensus-based workflow that can be adapted for other multidisciplinary and international research initiatives.

The final collaborative workflow is summarised in Figure 1.

Conclusions/Discussion

This scoping review protocol was conceived in response to the growing recognition of the parent–infant relationship as a foundational determinant of health during the first 1,000 days of life. In this context, mapping the available assessment instruments focused on the postnatal period is essential to guide research, clinical practice, and early intervention strategies, since existing measures vary in their scope, conceptual foundations, and methodological characteristics. By formalising a rigorously developed protocol, this initiative addresses a critical gap and establishes a structured pathway for synthesising and describing evidence on instruments assessing the parent–infant relationship in infants aged 0–24 months.

A key strength of this work lies in its explicitly collaborative, transdisciplinary, and international nature, embedded within the COST Action CA22114 – TREASURE network. The contribution of experts enabled conceptual convergence across diverse perspectives on bonding, attachment, interaction, and responsiveness. The structured consensus process fostered shared ownership of methodological decisions, enhancing the protocol's international applicability and adaptability.

Methodological rigour was ensured through alignment with established standards (JBI framework; PRISMA-ScR), open registration on the OSF, and a pilot validation phase conducted during the protocol development, which improved inter-reviewer consistency and clarified screening criteria.

Beyond establishing a methodological foundation, this protocol sets the stage for identifying conceptual, psychometric, and cultural gaps in existing instruments. Mapping tools according to their constructs, domains, reliability, validity, usability, and contextual adaptation will inform both research and practice, while also guiding future tool development, particularly in relation to paternal involvement, cultural sensitivity, and dynamic interaction-based assessments. While embodied and interaction-based dimensions of early relationships are increasingly recognised as important, particularly in vulnerable populations such as preterm infants (La Rosa *et al.*, 2024), these populations fall outside the scope of the present protocol. Future reviews may build on this work by specifically addressing embodied relational processes in high-risk or neonatal contexts. Ultimately, this Brief Report presents not only the outcome of a protocol development process but also a replicable framework for collaborative methodological construction within international research networks. The protocol, titled "Instruments for the assessment of parent–infant relationships: A scoping review protocol" and registered on OSF, provides the foundation for a forthcoming scoping review that will generate insights into the availability, conceptual diversity, and psychometric adequacy of relational assessment tools in early infancy.

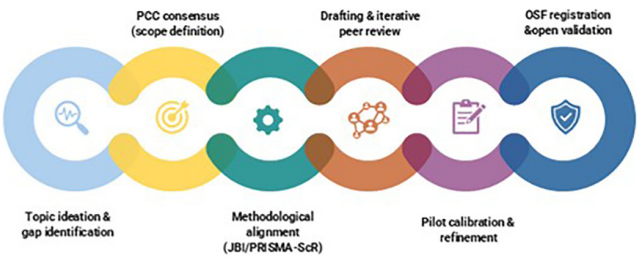

Figure 1. Stages of the collaborative workflow used to develop the scoping review protocol. The figure illustrates the sequential stages of the collaborative process, including initial ideation, definition of the Population–Concept–Context (PCC) framework, theoretical and methodological alignment with JBI and PRISMA-ScR guidance, protocol drafting, iterative collaborative review, and registration on the Open Science Framework (OSF). Standard scoping review development phases are integrated with network-specific collaborative elements characteristic of COST Action–based research.

In conclusion, this work demonstrates how structured, consensus-based collaboration within COST networks can produce methodologically sound and widely applicable research frameworks. By clarifying the field of parent–infant relational assessment, it contributes to advancing research, clinical decision-making, and policy development in early relational health, offering a scalable model for future interdisciplinary evidence synthesis initiatives across diverse international contexts.

Ethics and consent

Ethical approval and consent were not required for this study, as it reports the collaborative development process for a scoping review protocol and does not involve human participants or personal data.

Data availability

No underlying or extended data are associated with this manuscript, as it documents the collaborative process of protocol development rather than reporting research findings.

Reporting guidelines

The scoping review protocol described in this Brief Report is openly available on the Open Science Framework (OSF): https://doi.org/10.17605/OSF.IO/HRVX9 (Brandão *et al.*, 2025).

Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Acknowledgements

The authors would like to thank all members of the COST Action CA22114 – TREASURE for their valuable contributions to the collaborative discussions and consensus-building process that supported this work.

Editorial assistance was provided by ChatGPT (OpenAI, GPT-5), which was used solely to support language editing and formatting under the full supervision and approval of the authors, in accordance with the *F1000 AI Policy*.

References

Aktar E, Qu J, Lawrence PJ, *et al.*: **Fetal and infant outcomes in the offspring of parents with perinatal mental disorders: earliest influences.** *Front Psychiatry.* 2019; **10**: 391.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Berg A: **The importance of the first 1,000 days of life.** *J Child Adolesc Ment Health.* 2016; **28**(2): iii–vi.
PubMed Abstract | **Publisher Full Text**

Bhamani S, Syed A, Sheikh L, *et al.*: **Investing in mental health during the first 1,000 days of life: now and future.** *J Pak Med Assoc.* 2023; **73**(2): 374–376.
PubMed Abstract | **Publisher Full Text**

Black M, Merseth KA: **First 1000 days and beyond: strategies to achieve the Sustainable Development Goals.** In: S. Verma & A. Petersen (Eds.), *Developmental science and sustainable development goals for children and youth.* (Social Indicators Research Series), Springer, 2018; **74**: 97–112.
Publisher Full Text

Brandão S, Talmon A, Gieysztor E, *et al.*: **Instruments for the assessment of parent-infant relationships: a scoping review protocol.** 2025.
http://www.doi.org/10.17605/OSF.IO/HRVX9

Brockington IF, Fraser C, Wilson D: **The postpartum bonding questionnaire: a validation.** *Arch Womens Ment Health.* 2006; **9**(5): 233–242.
PubMed Abstract | **Publisher Full Text**

Clark R: **The Parent–Child early relational assessment: a factorial validity study.** *Educ Psychol Meas.* 1999; **59**(5): 821–846.
Publisher Full Text

Condon J, Corkindale C: **The assessment of parent-to-infant attachment: development of a self-report questionnaire instrument.** *J Reprod Infant Psychol.* 1998; **16**(1): 57–76.
Publisher Full Text

Fredriksen E, von Soest T, Smith L, *et al.*: **Parenting stress plays a mediating role in the prediction of early child development from both parents' perinatal depressive symptoms.** *J Abnorm Child Psychol.* 2019; **47**(1): 149–164.
PubMed Abstract | **Publisher Full Text**

Kim M, Kang SK, Yee B, *et al.*: **Paternal involvement and early infant neurodevelopment: the mediation role of maternal parenting stress.** *BMC Pediatr.* 2016; **16**(1): 212.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Korom M, Dozier M: **The importance of responsive parenting for vulnerable infants.** In: J. B. Benson (Ed.), *Adv Child Dev Behav.* Elsevier, 2021; **61**: 43–71.
PubMed Abstract | **Publisher Full Text**

La Rosa VL, Geraci A, Iacono A, *et al.*: **Affective touch in preterm infant development: Neurobiological mechanisms and implications for child–caregiver attachment and neonatal care.** *Children (Basel).* 2024; **11**(11): 1407.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Peters MDJ, Godfrey C, McInerney P, *et al.*: **Scoping reviews.** In: E. Aromataris & C. Lockwood (Eds.), *JBI manual for evidence synthesis.* (Chap. 10). JBI, 2024.
Publisher Full Text

Scher MS: **The first 1000 days influence life-course brain health: interdisciplinary fetal/neonatal neurology training.** *Pediatr Res.* 2024; **96**(4): 838–840.
PubMed Abstract | **Publisher Full Text**

Stein A, Pearson RM, Goodman SH, *et al.*: **Effects of perinatal mental disorders on the fetus and child.** *Lancet.* 2014; **384**(9956): 1800–1819.
PubMed Abstract | **Publisher Full Text**

Svanberg PO, Barlow J, Tigbe W: **The Parent–Infant interaction observation scale: reliability and validity of a screening tool.** *J Reprod Infant Psychol.* 2013; **31**(1): 5–14.
Publisher Full Text

Tricco AC, Lillie E, Zarin W, *et al.*: **PRISMA extension for Scoping Reviews (PRISMA-ScR): checklist and explanation.** *Ann Intern Med.* 2018; **169**(7): 467–473.
PubMed Abstract | **Publisher Full Text**

Wardoyo H, Moeloek ND, Basrowi RW, *et al.*: **Mental health awareness and promotion during the first 1000 days of life: an expert consensus.** *Healthcare (Basel).* 2024; **12**(1): 44.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Open Peer Review

Current Peer Review Status: ✔ ✔

Version 2

Reviewer Report 19 January 2026

https://doi.org/10.21956/openreseurope.24584.r68177

© **2026 Rosa V.** This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

✔ **Valentina Lucia La Rosa**
Department of Educational Sciences, University of Catania, Catania, Sicily, Italy

I commend the authors for their careful revisions and for enhancing the overall readability and scientific quality of the manuscript. I have no further major or minor concerns, and I recommend the paper for Indexing.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Developmental Psychology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 10 January 2026

https://doi.org/10.21956/openreseurope.23474.r67323

© **2026 McDonnell D.** This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

✔ **Dean McDonnell**
[1] South East Technological University, Waterford, County Waterford, Ireland
[2] South East Technological University, Waterford, County Waterford, Ireland

The report authored by Brandão et al outlines the collaborative, transdisciplinary development of

a protocol designed to map instruments assessing the parent–infant relationship from birth to 24 months. Developed within the merits of the COST Action CA22114 (TREASURE), the paper presents the procedural process rather than results, which greatly contributes to and aligns with consensus-building, methodological alignment, and open science principles, including OSF registration.

The manuscript is clearly written, well-structured, and aligns with the aims of *Open Research Europe* in terms of transparency, collaboration, and methodological rigour. Its primary contribution lies in offering a framework that is replicable, especially important when factoring the context of international collaboration, rather than advancing new empirical findings. This is appropriate for the article type, but also creates several areas where clarity, justification, and critical reflection could be strengthened.

The main strengths I would see here are the documents clear rationale and relevance to international policy, the methodological clarity and rigour, the underlying ethos of open science and collaboration, and its overarching scope within the discipline.

In terms of improvements, it may be useful to further evidence why there is need for a more explicit process to be documented (I fully understand why, but other academics/researchers may not), taking into account cultural developments, or conflicts within paradigms, operational definitions or terminology. It may also be useful to indicate how areas of attachment, parental bonding, and responsiveness were framed and discussed within the initial stages of the process.

Overall, I would be very happy to approve this piece with some minor clarifications to the above.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and does the work have academic merit?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are all the source data underlying the results available to ensure full reproducibility?
No source data required

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Developmental psychology, interpersonal relationships, technology interaction, research methodology.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Author Response 10 Jan 2026

Sónia Brandão

We sincerely thank the reviewer for his careful reading of the manuscript and for his positive and constructive assessment. We particularly appreciate the recognition of the manuscript's alignment with the principles of transparency, collaboration, methodological rigour, and open science promoted by Open Research Europe, as well as the acknowledgment of its contribution as a replicable methodological framework within an international research context. We also thank the reviewer for the thoughtful suggestions aimed at strengthening the clarity, justification, and critical reflection underpinning the documented collaborative process. In response, we have made the following revisions to the manuscript: Rationale for documenting the collaborative process To further clarify why the explicit documentation of the collaborative protocol development process is necessary, we have strengthened the Introduction and Discussion to more clearly articulate the added value of this approach. In particular, we now emphasise how divergent conceptual traditions, operational definitions, and disciplinary perspectives within early relational health research necessitate structured, transparent, and consensus-based methodological processes, especially in large international and multidisciplinary networks. This clarification aims to make the relevance of documenting the process more explicit for readers who may be less familiar with the challenges inherent in such collaborations. Framing of attachment, bonding, interaction, and responsiveness in the early stages In response to the reviewer's suggestion, we have expanded the description of the initial consensus-building stages in the Methods section. We now explicitly describe how key relational constructs, including attachment, parental bonding, interaction, and responsiveness, were discussed, defined, and conceptually framed during the early phases of protocol development. This addition clarifies how areas of conceptual convergence and divergence were addressed and how shared definitions informed subsequent methodological decisions. These revisions were made with the aim of enhancing transparency, conceptual clarity, and critical reflection, while remaining consistent with the article type and scope of a Brief Report focused on methodological development rather than empirical outcomes. Once again, we thank the reviewer for his supportive evaluation and insightful recommendations, which have helped strengthen the manuscript's clarity, justification, and relevance for an international academic audience.

Competing Interests: No competing interests were disclosed.

Reviewer Report 06 January 2026

https://doi.org/10.21956/openreseurope.23474.r66853

© 2026 Rosa V. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Valentina Lucia La Rosa
[1] Department of Educational Sciences, University of Catania, Catania, Sicily, Italy
[2] Department of Educational Sciences, University of Catania, Catania, Sicily, Italy

This manuscript addresses an important and underexplored methodological dimension of early relational health research by documenting the collaborative construction of a scoping review protocol within a large international network. The paper is generally clear, well structured, and coherent with its stated aims. The following comments are intended to strengthen the manuscript further and improve its clarity and contribution.

Major Revisions

1. Although the manuscript acknowledges the various constructs related to the parent-infant relationship, including bonding, attachment, interaction, and responsiveness, the conceptual differences between these constructs are not clearly defined. Since the scoping review aims to map instruments across these domains, including a concise integrative paragraph that clarifies how these constructs are theoretically distinguished and how overlaps will be handled during data extraction and synthesis would be beneficial. This clarification would strengthen the conceptual coherence of the protocol and reduce ambiguity for readers who are less familiar with this literature.
2. Focusing on the first 24 months is a reasonable choice that is consistent with the early relational health framework. However, the rationale for this cutoff should be more explicitly stated, particularly in relation to key developmental transitions, such as the emergence of attachment patterns, increasing infant autonomy, and changes in interactional modalities. Providing a brief developmental justification would reinforce the protocol's underlying methodological decisions.
3. Although the authors claim that no scoping review has systematically mapped instruments that assess the parent–infant relationship within the first 24 months, this assertion would be strengthened by a clearer positioning in relation to adjacent reviews or frameworks. Clarifying how this protocol differs from or builds upon previous reviews focused on bonding, attachment, or interactional measures would help readers better understand its novelty and scope.
4. The manuscript emphasizes the importance of mapping assessment tools for research and clinical practice. However, the implications for early intervention and preventive strategies could be articulated more clearly. Linking the availability and characteristics of instruments explicitly to their potential use in identifying relational risk or informing intervention pathways would strengthen the work's applied relevance.
5. In this context, it may be helpful to encourage more explicit consideration of instruments that capture the embodied and interactive dimensions of early relationships. This is particularly important for vulnerable populations, such as preterm infants, for whom early tactile and relational processes play a critical role in bonding and regulation. *(La Rosa et al., 2024)*

Minor Revisions

1. Some sections of the Introduction cover similar concepts related to early relational health and perinatal mental health. Streamlining these sections slightly would improve readability without compromising content.
2. Consistently use terms such as "parent–infant relationship", "early relational health", and

related constructs throughout the manuscript, especially when transitioning between the conceptual and methodological sections.
3. Figure 1 is conceptually useful, but its caption could be slightly expanded to guide the reader more explicitly through how the stages relate to standard scoping review development phases versus network-specific collaborative elements.

References

1. La Rosa V, Geraci A, Iacono A, Commodari E: Affective Touch in Preterm Infant Development: Neurobiological Mechanisms and Implications for Child–Caregiver Attachment and Neonatal Care. *Children*. 2024; **11** (11). Publisher Full Text

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and does the work have academic merit?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Not applicable

Are all the source data underlying the results available to ensure full reproducibility?
No source data required

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Developmental Psychology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 10 Jan 2026

Sónia Brandão

Response to Reviewer: Valentina Lucia La Rosa We sincerely thank the reviewer for her thoughtful, detailed, and constructive evaluation of our manuscript. We greatly appreciate the recognition of the manuscript's relevance and methodological contribution, as well as the insightful suggestions provided to further strengthen its conceptual clarity and applied relevance. Below, we outline how each of the reviewer's comments has been addressed.

Major comments 1. Conceptual distinction between bonding, attachment, interaction, and responsiveness We agree that greater conceptual clarity regarding these related constructs is essential. In response, we have revised the Introduction to include a concise integrative paragraph that distinguishes bonding, attachment, interaction, and responsiveness based on their theoretical foundations and typical modes of assessment. We also clarify how overlaps between constructs will be handled during data extraction and synthesis, ensuring transparent mapping while preserving conceptual distinctions. This addition aims to enhance coherence and reduce ambiguity for readers less familiar with this literature.

2. Rationale for the 24-month cutoff We thank the reviewer for highlighting the need for a clearer developmental justification. The Introduction has been strengthened to explicitly explain the focus on the first 24 months in relation to key developmental transitions, including the consolidation of attachment patterns, increasing infant autonomy, and qualitative changes in interactional modalities. We also clarify that, while early relational health is often framed within the broader “first 1,000 days” perspective, this scoping review intentionally focuses on the postnatal period, where parent–infant interactions are directly observable and assessable.

3. Positioning in relation to adjacent reviews To address this comment, we have refined the Introduction to more clearly position the protocol in relation to existing reviews focused on specific dimensions such as bonding, attachment, or interaction. We explicitly state how the present protocol differs by offering a comprehensive mapping of instruments across constructs within a defined developmental window (birth to 24 months), thereby clarifying its novelty and broader scope.

4. Implications for early intervention and preventive strategies We agree that the applied relevance of this work can be articulated more clearly. The Discussion has been revised to explicitly link the mapping of assessment instruments to their potential role in identifying relational risk, informing early intervention pathways, and supporting preventive strategies in clinical and community settings.

5. Embodied and interactive dimensions; vulnerable populations We appreciate this important suggestion. The revised Discussion now explicitly acknowledges the relevance of instruments that capture embodied and interactive dimensions of early relationships. While the scoping review protocol focuses on healthy infants and excludes preterm populations, we note the importance of such dimensions for understanding relational processes more broadly and identify this as a relevant consideration for future research and tool development, citing La Rosa et al. (2024) accordingly. Minor comments 1. Streamlining overlapping sections We have streamlined sections of the Introduction to reduce redundancy between discussions of early relational health and perinatal mental health, improving readability while maintaining conceptual continuity. 2. Terminological consistency We have reviewed the manuscript to ensure consistent use of key terms, including “parent–infant relationship” and “early relational health,” particularly when transitioning between conceptual and methodological sections. 3. Figure 1 caption The caption of Figure 1 has been expanded to more clearly guide readers through the stages of the collaborative workflow and to distinguish standard scoping review development phases

from network-specific collaborative elements. Once again, we thank the reviewer for her insightful feedback, which has substantially strengthened the conceptual clarity, methodological transparency, and applied relevance of the manuscript.

Competing Interests: No competing interests were disclosed.