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EDITORIAL

Maternal and Infant (Mental) Health and Development: Our TREASURE - Introducing an EU COST Action on the Impact of Maternal Perinatal Stress

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Advances in the scientific understanding of the impact of maternal perinatal stress can provide information that is beneficial for women, families, and their children across decades. The perinatal period refers to the time from conception up to one year postpartum (Fort et al., 2024). Stress, despite often being portrayed as a detrimental response, is a crucial contributor to optimal development and biopsychosocial adaptation of organisms to challenges throughout the lifespan by inducing physiological changes, such as in immune, metabolic, and cardiovascular systems (McEwen & Akil, 2020). In support of this, the World Health Organization (WHO) regional office for Europe task force suggested maternal mental health to be promoted in order to enhance early childhood development. Moreover, WHO Europe recommends a healthy environment during the perinatal period to achieve a healthy infancy, childhood, and adulthood (WHO, 2022).

Typically, previous studies associated high levels of maternal stress during pregnancy with adverse consequences for both mothers (e.g., diabetes, pre-eclampsia, mental health challenges) and their offspring (e.g., stillbirth, low-birth weight, prematurity, cardiovascular disease, cognitive delay, neurodevelopmental and mental disorders, neuroinflammation, and asthma) (Glover, 2014; Van den Bergh et al., 2020). However, there are still many gaps and challenges concerning the impact of perinatal stress. Firstly, it is unclear how the characteristics of psychological stressors, such as their type, intensity, timing, duration, and frequency, could influence this impact. Secondly, the underlying biological mechanisms of this impact, such as changes in physiological systems and molecular mechanisms like gene expression and epigenetics, are still

largely undetermined (COST Action 22114, 2023). Finally, recent research also emphasises the potential long-term impact of perinatal stress, leading to inter- and trans-generational effects. The mechanisms of these effects as well as their influences on development, behavior, and (psychological) health are also still unknown.

Considering these gaps and challenges in the field, the main objective of the EU COST Action TREASURE (CA22114) is to consolidate a multidisciplinary international research network that will enhance interconnectedness and promote innovation in the research community across European countries and beyond. A COST Action is a multidisciplinary research network that promotes researchers and clinicians to jointly investigate a certain topic for a period of four years. The TREASURE COST Action has a duration of four years (2023-2027) and currently involves more than 500 researchers from 33 countries, including 18 Inclusiveness Target Countries, referring to less research-intensive geographical locations.

The EU COST Action TREASURE focuses on six specific objectives: 1) to develop a common definition for maternal perinatal stress to specify the characteristics of perinatal stressors and increase the comparability between studies to benefit the collective use by researchers, clinicians, stakeholders, and policymakers; 2) to study the biopsychosocial risk and resilience factors associated with high levels of maternal perinatal stress; 3) to improve and consolidate psychological and biological measures to assess maternal perinatal stress; 4) to unify a multidisciplinary network of clinicians, researchers, and stakeholder/NGO representatives to better understand maternal perinatal stress and to identify potential susceptibility periods for fetal development; 5) to inform stakeholders and policymakers on cost-effective strategies to reduce the impact of such stress; and 6) to disseminate results among users, including academics, industry, general public, researchers, clinicians, and policymakers.

Based on these specific objectives, the EU COST Action TREASURE is composed of six working groups (WG) oriented to achieve the following specific objectives: WG1) Maximising the understanding of maternal perinatal psychological and physiological stress; WG2) Exploring intergenerational and transgenerational impact of maternal perinatal stress on the offspring through epigenetic and biomedical research; WG3) Improving assessment approaches in perinatal maternal and paternal stress through psychological and biological measures; WG4) Optimising the perinatal period to reduce the adverse impact on the offspring; WG5) Analysis of health economics in relation to maternal perinatal stress; and WG6) Facilitating communication, dissemination, and knowledge transfer related to the objectives of the Action.

Future steps for the upcoming years include online and in-person meetings, workshops, training schools, short-term scientific missions, and two international conferences (1st SRIP-TREASURE International Conference in Granada, Spain in September 2026; 2nd TREASURE International Conference in Sarajevo, Bosnia and Herzegovina in 2027). These events will be organised to promote and improve maternal mental health whilst boosting infants´ development across Europe and beyond. Building new resources and knowledge in perinatal mental health has the potential to promote maternal and infant well-being in the face of exposure to stress (Navon-Eyal & Taubman-Ben-Ari, 2023). In order to contribute to this effort, our COST Action includes a website (www.treasurecost.eu) to provide resources on the topic, updates on the progress of this Action along with the procedure to join (TREASURE, 2025).

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Authors are members of the CA22114 (Core Group).

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