### **BMJ Global Health**

# Revisiting health systems to integrate perinatal mental health into maternal and child health services: perspectives from research, policy and implementation

Anteneh Asefa ,¹ Charlotte Hanlon ,²,²,³,⁴ Bruno Marchal,¹ Caroline Homer ,⁵ Samson Gebremedhin,⁶ Özge Tunçalp ,⁴ Nandini Sarkar,¹ Alexandre Delamou ,³,³ Shanon McNab,¹ Lenka Beňová ¹

**To cite:** Asefa A, Hanlon C, Marchal B, *et al.* Revisiting health systems to integrate perinatal mental health into maternal and child health services: perspectives from research, policy and implementation. *BMJ Glob Health* 2024;**9**:e015820. doi:10.1136/bmjgh-2024-015820

**Handling editor** Soumitra S Bhuyan

Received 2 April 2024 Accepted 15 November 2024

### INTRODUCTION

Given the concerning prevalence and largescale impact of poor perinatal mental health worldwide, there is a growing call for actionable recommendations to promote perinatal mental health and to prevent and treat perinatal mental health conditions. In this commentary, we reflect on existing evidence on the (potential) contributors to perinatal mental health conditions and put forward research, policy and implementation considerations for advancing perinatal mental health, with a focus on the African region.

### The burden of poor perinatal mental health

Globally, the burden of common perinatal mental health conditions—mainly anxiety disorders and depression—is substantial, with individual-level to societal impacts, which can impede achievement of the Sustainable Development Goals. Nearly one in five (19.8%) women in low- and middle-income countries experience common mental disorders.<sup>2</sup> While perinatal depression—depression that occurs during pregnancy or after childbirth—contributes an important share of perinatal mental health conditions, there is a significant unmet need for measures to address it.<sup>3 4</sup> Current evidence suggests that women's negative experiences of care during childbirth may contribute to postpartum depression.<sup>5</sup> There is a growing body of evidence for higher levels of postpartum depression among women and adolescents who have experienced mistreatment during facility-based childbirth (also known as disrespect and abuse or obstetric violence).<sup>67</sup>

#### **SUMMARY BOX**

- There is a growing call for actionable recommendations to promote perinatal mental health and to prevent and treat perinatal mental health conditions, particularly in Africa.
- ⇒ The design and implementation of perinatal mental health promotion and prevention interventions should be (re)imagined based on the tenets of woman-centred approaches that recognise the unique needs and expectations of women.
- ⇒ Caring for health workers in general and their mental health in particular should be an integral part of perinatal mental health interventions.
- ⇒ There are proven and cost-effective interventions which can avert the burden of poor perinatal mental health in low-resource settings, if supported by political commitment, context-adapted policies and strategies, adequate investment, intersectoral collaboration, community engagement, and ongoing research.

### Why Africa?

Africa has the highest rates of adolescent pregnancy, mistreatment during child-birth, maternal morbidity and mortality and perinatal depression (17% compared with 10% globally). 8-11 These challenges are inextricably linked and share deep-rooted drivers, 3 12 meaning they must be addressed through context-appropriate, coordinated and multisectoral interventions. Such interventions should prioritise tackling the contributors to poor access to high-quality maternal, sexual and reproductive health services. Low coverage and quality of routine postnatal care (48%) 13 and lack of integration of mental health services into the continuum



© World Health Organization 2024. Licensee BMJ.

For numbered affiliations see end of article.

Correspondence to Dr Anteneh Asefa; aasefa@itg.be



of maternal healthcare spanning from the preconception period to the postpartum period<sup>14</sup> contribute to low detection and treatment of perinatal depression in African countries. 15 This in turn leads to a host of individual-, family and societal-level problems. For women, this can include difficulty functioning, suicidal behaviour, poorer self-care, substance use, less optimal engagement with maternal care services, and poorer pregnancy and obstetric outcomes.4 Perinatal depression in the woman is also associated with increased mental ill-health in her partner, compromised child health, growth and development and lost productivity and poverty. A recent report from the World Economic Forum highlighted that closing the health gap in depressive symptoms among women has the potential to add at least US\$100 billion to the global economy. 16 Stigma and discrimination can exacerbate the severity of perinatal depression and be a potent barrier to accessing services.

### Contributors to poor perinatal mental health: evidence gaps and research priorities

There exists an extensive evidence-base on risk factors for postpartum depression (box 1A). An increasingly recognised factor in poor perinatal mental health is the mistreatment (also called 'disrespect and abuse' or 'obstetric violence') of women during childbirth in health facilities (box 1B).

### Policy and implementation(research) perspectives

Towards women-centred and respectful perinatal mental health systems

Strengthening perinatal mental health promotion, prevention and treatment services in Africa is compounded by various interconnected challenges. These include underinvestment in health systems, staff shortages and heavy reliance on task-shifted maternal (mental) health services, lack of staff training in screening/treatment of perinatal depression, diverse sociocultural expectations of care, normalisation of mistreatment of women during childbirth as well as societal factors, including high levels of gender-based violence, and low awareness and stigmatisation of people with mental conditions. 17-20 Therefore, the design and implementation of perinatal mental health promotion and prevention interventions should be (re)imagined based on the tenets of woman-centred approaches that recognise the unique needs and expectations of women. Engaging women and communities in co-designing and implementation of perinatal mental health interventions is essential to building their trust in available prevention and treatment and improving their retention in care.

Formative research should focus on critically examining the ecosystem of maternal health and understanding the needs of pregnant and postpartum women and their families. In the process, strengthening social accountability mechanisms is pivotal not to leave behind adolescent and young women, ethnic minorities, migrants, women living with HIV, economically deprived families

### Box 1 Poor perinatal mental health and mistreatment of women during childbirth

### A. Contributors to poor perinatal mental health

These include, among others, intimate partner violence or marital discord, economic stress and other life stressors, lack of social support, unplanned pregnancy, poor perinatal outcomes, and pregnancy and childbirth complications.<sup>37</sup> Moreover, misconceptions and low awareness of perinatal depression among women, families and health workers, contextual conditions and stressors such as armed conflict and migration, climate change, pandemics such as the COVID-19 crisis and political and economic instability, exacerbate its prevalence and severity.<sup>17 38-41</sup>

### B. Mistreatment of women during childbirth in health facilities and its role in poor perinatal mental health

Mistreatment may take various forms, such as physical, sexual and verbal abuse; non-dignified care; compromised standards of care; poor rapport between health workers and women and their families and health system bottlenecks, including conditions that compromise labour support and companionship. Mistreatment of women is a key issue that influences the experience and quality of care, as well as future care-seeking, including for psychosocial problems and mental health conditions. 42 43 Evidence from several low- and middleincome countries, including those in Africa, shows a worryingly high prevalence (28%–83%) of mistreatment of women during childbirth in health facilities. Studies from Brazil, and Ghana, Guinea, Myanmar and Nigeria<sup>6</sup> reported a significantly higher prevalence of postpartum depression among women who experienced mistreatment during childbirth in health facilities. Recently, a high-level global technical consultation highlighted the urgent need to generate better evidence on the links between the mistreatment of women during childbirth in health facilities and perinatal mental health.<sup>34</sup> This requires examining the role of mistreatment in a potentially complex causal chain between perinatal depression and its various risk factors or consequences using robust epidemiological and health systems research approaches (figure 1). Such research should account for the role of determinants of both mistreatment and perinatal depression, as well as follow women across the maternal health continuumfrom pregnancy to the late postpartum period and beyond. The benefits of longitudinal studies measuring symptoms of perinatal depression, its risk factors and experiences of mistreatment have a dual benefit. First, they provide a better estimate of the role of mistreatment in postpartum depression and women's well-being more generally. Second, they capture changes in depressive symptoms over the maternal continuum. To enhance the rigour of such longitudinal studies, researchers should embed qualitative approaches that explore the lived experiences of women affected by perinatal depression and involve them in the design and conduct of studies. It is especially pressing to explore the experiences of adolescent women as there is a critical evidence gap in perinatal mental health for this key population.44

and women in humanitarian settings.<sup>18</sup> Likewise, an integral component in the whole process of promoting beneficial and relevant perinatal mental health services is providing adequate answers to the question 'Do women and communities trust our health services?' Thus, it is critical to examine and tackle the complex drivers of health workers' and users' (mis) trust in perinatal mental health services and the overarching health system.<sup>21</sup> An important contribution would be to build connections



#### Situational factors Experiences along the maternal continuum Life stress Postpartum Lack of social support Childbirth Pregnancy Dissatisfaction with marital period Individual relationship/s level Complications and adverse outcomes Unintended pregnancy experiences **↓**↑ · Gender-based violence **Psychological factors** Antepartum Postpartum depression · History of depression depression • Family history of depression Mistreatment (disrespect and abuse) across the maternal care continuum Λ↓ Health system Poor access to high-quality maternal (mental) health care constraints Underdiagnosis and undertreatment of perinatal depression

Figure 1 Perinatal depression, risk factors and consequences.

with religious and traditional healers, as they often hold significant roles within the community in relation to perceptions about mental health conditions and their treatment.<sup>22</sup>

### Integrated perinatal care provision

The integration of perinatal mental health interventions into maternal health services at macro-level, meso-level and micro-level of health systems is an essential requirement towards woman-centred healthcare systems. A recent guide launched by WHO identifies key aspects required for integrated physical and mental perinatal care to ensure and promote the mental well-being of perinatal women in ways that are socio-culturally and contextually appropriate (box 2). <sup>15</sup>

We argue that it is crucial to first strengthen the capacity within maternal care to provide basic perinatal mental health services. This could begin with incorporating mental health modules in in-service training and mentorship of frontline health workers providing maternal and child health services. Resources include the WHO mental health Gap Action Programme, now implemented in >100 countries<sup>23</sup> and the Practical Approach to Care Kit, which integrates woman-centred psychosocial

## Box 2 WHO's stepped-care approach to the provision of perinatal mental healthcare<sup>15</sup>

- Promotion of good mental health and well-being for all women through multidimensional interventions, including equipping women with information and skills to maximise their own mental health, stress management, social support, life skills education and screening for mental health conditions.
- 2. Preventive interventions for vulnerable women who have timelimited mental health concerns that affect their functioning.
- 3. Treatment of mental health conditions with mild-to-moderate symptoms and referral to specialist care for women whose symptoms do not improve.
- 4. Treatment of mental health conditions with moderate-to-serious symptoms by mental health specialists.

approaches into every primary care-based maternal care consultation along the continuum of care using a problem-focused approach.<sup>24</sup> Strengthening effective supervision, consultation and referral systems for perinatal mental healthcare to tertiary care facilities, using the stepped-care approach, 15 is essential, particularly in contexts where available mental health services are concentrated in hospitals. On the other hand, leveraging resources to forge perinatal mental health interventions at the community level and involving women who have experienced perinatal depression in the development and improvement of services is vital to improve early prevention, identification and early referral of perinatal mental health conditions.<sup>25</sup> Incorporation of perinatal mental health indicators into existing maternal health monitoring and evaluation systems is the foundation for strengthening a culture of continuous quality improvement through generating evidence for learning health systems and redesigning local maternal health policy and implementation.<sup>26</sup> Without these structural shifts in health systems, any investment in maternal care will fall short of ensuring the accessibility of truly holistic and woman-centred care across the maternal continuum of care. Embedding implementation research in integration and quality improvement initiatives is an excellent opportunity to contribute to the (co)production of knowledge that can be applied in the local context to promote perinatal mental health.<sup>27</sup> In tandem, the meaningful engagement of frontline health workers in such implementation research will have far-reaching benefits in enhancing ownership and sustainability of interven-

### A midwifery-led model: a promising model for improving facility-based perinatal mental health in Africa?

A systematic review reported that strengthening midwifery continuity of care contributes to improved perinatal mental health in high-income settings. <sup>28</sup> In low-resource settings, there is growing evidence that midwifery continuity of care models that have respectful maternity care



at their heart improve the uptake and quality of maternal health services.<sup>29</sup> However, there is little or no evidence of their impact on improving perinatal mental health. As midwives and nurses provide most of the care along the pregnancy, childbirth and the postpartum continuum in most countries in Africa, it is imperative to explore how to integrate interventions to improve perinatal mental health into such continuity of care models. We propose this should be approached first from a bottom-up perspective by testing the effectiveness of context-appropriate models, and gradually scaling these up through a topdown political and administrative commitment. There is a need to re-think the training of midwives and general health workers involved in maternal care so that they are all equipped with the necessary skills for compassionate communication, building rapport and providing basic psychosocial support. Adult learning-based approaches show promise.<sup>30</sup> The onus is not on midwives alone as current systems mitigate against woman-centred care. When midwives are overwhelmed due to inadequately resourced health systems and extensive social adversity, their capacity to deliver woman-centred care is undermined. Innovative approaches for integrating interventions to address the social determinants of poor perinatal mental health from a multidisciplinary perspective, for example, cash transfers and interventions to reduce gender-based violence, need testing at larger scale.<sup>31 32</sup> Alongside this, in light of the very high levels of burnout among health workers in under-resourced health systems,<sup>33</sup> we underscore that caring for health workers in general and their mental health in particular should be an integral part of perinatal mental health interventions.

#### CONCLUSIONS

Poor perinatal mental health remains a neglected public health challenge in Africa, despite recognised intergenerational consequences and negative impact on maternal and newborn health. 14 There is an urgent need for more research and resources to inform and implement policy on universal care for perinatal mental health.<sup>34</sup> The cost of inaction to prevent and treat peripartum depression poses far-reaching consequences at the individual, family and national levels<sup>35</sup> on top of derailing efforts to achieve maternal and mental health targets of the Sustainable Development Goals. 36 Despite the challenges, there are proven and cost-effective interventions that can avert the burden of poor perinatal mental health in low-resource settings,<sup>20</sup> if supported by political support, contextadapted policies and strategies, adequate investment, intersectoral collaboration, women's and community engagement and ongoing research. One such approach valuable in itself—is improving respectful care during pregnancy, childbirth and the postpartum period. Now is the time to explore and strengthen synergies between innovative interventions to improve respectful maternity care and perinatal mental health services in the region and globally.

#### **Author affiliations**

<sup>1</sup>Department of Public Health, Institute of Tropical Medicine, Antwerp, Belgium <sup>2</sup>Division of Psychiatry, Centre for Clinical Brain Sciences, University of Edinburgh, Edinburgh, Scotland, UK

<sup>3</sup>Department of Psychiatry, School of Medicine, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia

<sup>4</sup>Center for Innovative Drug Development and Therapeutic Trials for Africa (CDT-Africa), College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia <sup>5</sup>Maternal, Child and Adolescent Health Program, Burnet Institute, Melbourne, Victoria, Australia

<sup>6</sup>School of Public Health, Addis Ababa University, Addis Ababa, Ethiopia <sup>7</sup>UNDP/UNFPA/UNICEF/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department of Sexual and Reproductive Health and Research, World Health Organization, Geneva, Switzerland

<sup>8</sup>Centre National de Formation et de Recherche en Santé Rurale, Maférinyah, Forécariah, Guinea

<sup>9</sup>Africa Center of Excellence (CEA-PCMT), Gamal Abdel Nasser University of Conakry, Conakry, Guinea

<sup>10</sup>MOMENTUM Country and Global Leadership, Jhpiego, Baltimore, Maryland, USA

X Anteneh Asefa @AntenehAsef, Özge Tunçalp @otuncalp and Lenka Beňová @lenkahenova

**Contributors** AA conceptualised and led the development of the manuscript and is the guarantor. ChH, BM, CaH, SG, ÖT, NS, AD, SMcN and LB made critical contributions to the development and finalisation of the manuscript and have read and approved the final version of the manuscript. The authors alone are responsible for the views expressed in this commentary and they do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated.

**Funding** AA is funded by the Research Foundation-Flanders (FWO) as part of his postdoctoral fellowship (FWO file number 1261923N). ChH receives support from the National Institute for Health and Care Research (NIHR) for the NIHR Global Health Research Group on Homelessness and Mental Health in Africa (HOPE; NIHR134325) using UK aid from the UK Government. CH also receives support from WT grants 222154/Z20/Z and 223615/Z/21/Z.

**Disclaimer** The author is a staff member of the World Health Organization. The author alone is responsible for the views expressed in this publication and they do not necessarily represent the views, decisions or policies of the World Health Organization. The views expressed in this publication are those of the authors and not necessarily those of funders.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement There are no data in this work.

**Open access** This is an open access article distributed under the terms of the Creative Commons Attribution IGO License (CC BY 3.0 IGO), which permits use, distribution, and reproduction in any medium, provided the original work is properly cited. In any reproduction of this article there should not be any suggestion that WHO or this article endorse any specific organization or products. The use of the WHO logo is not permitted. This notice should be preserved along with the article's original URL.

### ORCID iDs

Anteneh Asefa http://orcid.org/0000-0003-4470-1848
Charlotte Hanlon http://orcid.org/0000-0002-7937-3226
Caroline Homer http://orcid.org/0000-0002-7454-3011
Özge Tunçalp http://orcid.org/0000-0002-5370-682X
Alexandre Delamou http://orcid.org/0000-0002-9397-7106
Lenka Beňová http://orcid.org/0000-0001-8595-365X

#### **REFERENCES**

- 1 World Health Organization. Comprehensive mental health action plan 2013–2030. Geneva, Switzerland: World Health Organization, 2021.
- 2 Fisher J, Cabral de Mello M, Patel V, et al. Prevalence and determinants of common perinatal mental disorders in women in



- low- and lower-middle-income countries: a systematic review. *Bull World Health Organ* 2012;90:139G–49G.
- 3 Howard LM, Khalifeh H. Perinatal mental health: a review of progress and challenges. World Psychiatry 2020;19:313–27.
- 4 Atif N, Lovell K, Rahman A. Maternal mental health: The missing 'm' in the global maternal and child health agenda. Semin Perinatol 2015;39:345–52.
- 5 Bell AF, Andersson E. The birth experience and women's postnatal depression: A systematic review. *Midwifery* 2016;39:112–23.
- 6 Guure C, Aviisah PA, Adu-Bonsaffoh K, et al. Mistreatment of women during childbirth and postpartum depression: secondary analysis of WHO community survey across four countries. BMJ Glob Health 2023;8:e011705.
- 7 Paiz JC, de Jezus Castro SM, Giugliani ERJ, et al. Association between mistreatment of women during childbirth and symptoms suggestive of postpartum depression. BMC Pregnancy Childbirth 2022;22:664.
- 8 Dadi AF, Akalu TY, Baraki AG, et al. Epidemiology of postnatal depression and its associated factors in Africa: A systematic review and meta-analysis. PLoS ONE 2020;15:e0231940.
- 9 Bohren MA, Vogel JP, Hunter EC, et al. The Mistreatment of Women during Childbirth in Health Facilities Globally: A Mixed-Methods Systematic Review. PLoS Med 2015;12:e1001847.
- 10 Kassa GM, Arowojolu AO, Odukogbe AA, et al. Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and Meta-analysis. Reprod Health 2018;15:195.
- 11 World Health Organization. Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, world bank group and undesa/population division. Geneva, Switzerland World Health Organization: 2023.
- 12 Agnafors S, Bladh M, Svedin CG, et al. Mental health in young mothers, single mothers and their children. BMC Psychiatry 2019:19:112.
- 13 Tessema ZT, Yazachew L, Tesema GA, et al. Determinants of postnatal care utilization in sub-Saharan Africa: a meta and multilevel analysis of data from 36 sub-Saharan countries. Ital J Pediatr 2020;46:175.
- 14 Alderdice F, Newham J. Global maternal mental health: where you live matters. J Reprod Infant Psychol 2016;34:1–2.
- 15 World Health Organization. Guide for integration of perinatal mental health in maternal and child health services. Geneva, Switzerland World Health Organization; 2022.
- 16 World Economic Forum. Closing the women's health gap: a \$1 trillion opportunity to improve lives and economies. Geneva, Switzerland World Economic Forum; 2024.
- 17 Mutahi J, Larsen A, Cuijpers P, et al. Mental health problems and service gaps experienced by pregnant adolescents and young women in Sub-Saharan Africa: A systematic review. EClinMed 2022;44:101289.
- 18 Rathod S, Pinninti N, Irfan M, et al. Mental Health Service Provision in Low- and Middle-Income Countries. Health Serv Insights 2017;10.
- 19 Manolova G, Waqas A, Chowdhary N, et al. Integrating perinatal mental healthcare into maternal and perinatal services in low and middle income countries. BMJ 2023;381:e073343.
- 20 Rahman A, Fisher J, Bower P, et al. Interventions for common perinatal mental disorders in women in low- and middle-income countries: a systematic review and meta-analysis. *Bull World Health Organ* 2013;91:593–601I.
- 21 Govender V, Topp SM, Tunçalp Ö. Rethinking trust in the context of mistreatment of women during childbirth: a neglected focus. BMJ Glob Health 2022;7:e009490.
- 22 Brown P, Calnan M, Scrivener A, et al. Trust in Mental Health Services: A neglected concept. J Ment Health 2009;18:449–58.
- 23 Keynejad R, Spagnolo J, Thornicroft G. WHO mental health gap action programme (mhGAP) intervention guide: updated systematic review on evidence and impact. *Evid Based Ment Health* 2021;24:124–30.
- 24 Cornick R, Picken S, Wattrus C, et al. The Practical Approach to Care Kit (PACK) guide: developing a clinical decision support tool to simplify, standardise and strengthen primary healthcare delivery. BMJ Glob Health 2018;3:e000962.

- 25 Hanlon C, Alem A, Lund C, et al. Moving towards universal health coverage for mental disorders in Ethiopia. Int J Ment Health Syst 2019;13:11.
- 26 Sheikh K, Abimbola S, eds. Learning health systems: pathways to progress. Flagship report of the alliance for health policy and systems research. Geneva, Switzerland: World Health Organization, 2021.
- 27 Vindrola-Padros C, Pape T, Utley M, et al. The role of embedded research in quality improvement: a narrative review. BMJ Qual Saf 2017;26:70–80.
- 28 Cummins A, Baird K, Melov SJ, et al. Does midwifery continuity of care make a difference to women with perinatal mental health conditions: A cohort study, from Australia. Wom Birth 2023;36:e270–5.
- 29 Nove A, Friberg IK, de Bernis L, et al. Potential impact of midwives in preventing and reducing maternal and neonatal mortality and stillbirths: a Lives Saved Tool modelling study. Lancet Glob Health 2021;9:e24–32.
- 30 Kathree T, Bachmann M, Bhana A, et al. Management of Depression in Chronic Care Patients Using a Task-Sharing Approach in a Real-World Primary Health Care Setting in South Africa: Outcomes of a Cohort Study. Commun Ment Health J 2023;59:1261–74.
- 31 Lever Taylor B, Mosse L, Stanley N. Experiences of social work intervention among mothers with perinatal mental health needs. *Health Soc Care Community* 2019;27:1586–96.
- 32 Keynejad RC, Bitew T, Sorsdahl K, et al. Problem-solving therapy for pregnant women experiencing depressive symptoms and intimate partner violence: A randomised, controlled feasibility trial in rural Ethiopia. PLOS Glob Public Health 2023;3:e0002054.
- 33 Dubale BW, Friedman LE, Chemali Z, et al. Systematic review of burnout among healthcare providers in sub-Saharan Africa. BMC Public Health 2019;19:1247.
- Matthews S. Respectful maternity care and maternal mental health are inextricably linked. Washington DC, USA: Wilson Center; 2021. Available: https://www.newsecuritybeat.org/2021/09/respectfulmaternity-care-maternal-mental-health-inextricably-linked/ [Accessed 20 Sep 2021].
- 35 Lépine J-P, Briley M. The increasing burden of depression. Neuropsychiatr Dis Treat 2011;7:3–7.
- 36 Votruba N, Thornicroft G, FundaMentalSDG Steering Group. Sustainable development goals and mental health: learnings from the contribution of the FundaMentalSDG global initiative. Glob Ment Health (Camb) 2016;3:e26.
- 37 Hutchens BF, Kearney J. Risk Factors for Postpartum Depression: An Umbrella Review. J Midwife Womens Health 2020;65:96–108.
- 38 Agler RA, Zivich PN, Kawende B, et al. Postpartum depressive symptoms following implementation of the 10 steps to successful breastfeeding program in Kinshasa, Democratic Republic of Congo: A cohort study. PLoS Med 2021;18:e1003465.
- 39 Santomauro DF, Mantilla Herrera AM, Shadid J. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *Lancet* 2021;398:1700–12.
- 40 Stevenson K, Fellmeth G, Edwards S, et al. The global burden of perinatal common mental health disorders and substance use among migrant women: a systematic review and meta-analysis. Lancet Public Health 2023;8:e203–16.
- 41 Olson DM, Metz GAS. Climate change is a major stressor causing poor pregnancy outcomes and child development. F1000Res 2020;9.
- 42 Bohren MA, Mehrtash H, Fawole B, et al. How women are treated during facility-based childbirth in four countries: a cross-sectional study with labour observations and community-based surveys. *Lancet* 2019;394:1750–63.
- 43 Sarkar NDP, Bunders-Aelen J, Criel B. The complex challenge of providing patient-centred perinatal healthcare in rural Uganda: A qualitative enquiry. Soc Sci Med 2018;205:82–9.
- 44 Sabet F, Prost A, Rahmanian S, et al. The forgotten girls: the state of evidence for health interventions for pregnant adolescents and their newborns in low-income and middle-income countries. Lancet 2023;402:1580–96.