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# International Marcé Society Biennial Scientific Conference 2018

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Global Experiences, Global Dialogues, Global Responses  
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## TABLE OF CONTENTS

**PLENARY LECTURES**

[Presidential Keynote] Maternal mental health and the World Health Organization, UNICEF and World Bank 2018 Nurturing Care Framework . . .	647
Suicide in women. . . . .	647
Perinatal depression globally: Myths and realities. . . . .	647
Perinatal trauma. . . . .	647
Perinatal depression in women: Why be concerned? What can we do about it?. . . . .	648

**CONFERENCE ABSTRACTS**

The effects of prenatal stress on the fetus; starting to understand the underlying mechanisms	
Blinking in the dark: effects of maternal anxiety and depression on fetal reactions to sound and light. . . . .	648
Birth of the blues – the effects of prenatal depression on the infant brain. . . . .	648
Functional neuroimaging correlates of maternal antenatal stress and amniotic fluid cortisol levels and sustained attention in children aged 6-9 years. . . . .	649
Depression in pregnancy, risk factors and sex specific placental gene expression. . . . .	649

**Reaching women who do not have access to support**

Maternal mental health services in India: Treatment gap and missed opportunities. . . . .	649
Barriers and solutions for improvement of access to care for vulnerable mothers in France. . . . .	649
Barriers and solutions for the promotion of mothers and fathers' perinatal mental health in Portugal. . . . .	650
MUMSPACE: Increasing reach via online perinatal mental health tools. . . . .	650
What can we do to reach women?. . . . .	651

**Cross-cultural issues in mother-infant caregiving – findings from the Indo-UK collaborative Bangalore Child Health and Development study**

Maternal anxiety mediates the link between partner psychological abuse and infant anger prone temperament in the Bangalore Child Health and Development study. . . . .	651
Similarities and differences in early infant care in UK and India: A psychometric comparison using the parent-infant caregiving touch scale. . . . .	651
Conceptualizing cross-cultural differences in early caregiving: Comparative levels of instruction and mind-mindedness in UK and Indian samples. . . . .	651

**Emerging frontiers in infant mental health**

Overview of infant mental health (IMH) and its status in India. . . . .	652
Landmark studies, diagnostic systems, assessments and management in infant mental health. . . . .	652
Developmental and psychosocial intervention. . . . .	652

**The impact of antenatal depression on child outcomes – current evidence on impact and management**

Opening windows of opportunities: Evaluating the impact of prenatal intervention to support maternal mood to change developmental trajectories of psychopathology risk among infants. . . . .	652
Household confusion, maternal depression and prenatal SSRI exposure and self-regulation from infancy to 6 years. . . . .	653
Maternal antenatal mood and child development: an exploratory study of treatment effects on child outcomes up to 5 years. . . . .	653
Exploring the effect of depression treatment during pregnancy on offspring's epigenetic profiles. . . . .	654
Antenatal stress, child outcomes and interventions; implications for lower- and middle-income countries. . . . .	654

**Postpartum PTSD and subjective birth experience – implications for mother and child**

Women's subjective birth experience: Associations with new onset postpartum depression or PTSD. . . . .	654
Traumatic birth – consequences and treatment: Experiences from the mother baby unit at Dresden University. . . . .	655
Maternal sensitivity in mothers with negative birth experiences – Associations to postpartum depression and history of interpersonal trauma. . . . .	655
The impact of postpartum PTSD on breastfeeding: a longitudinal population-based study. . . . .	655

**Scaling up the Thinking Healthy program for maternal depression through peer delivery: Experience of two trials in India and Pakistan**

The Thinking Healthy program for perinatal depression: The development and adaptation for peer delivery in India and Pakistan. . . . .	656
Evaluating the effectiveness of the Thinking Healthy program by peers in Goa, India and Rawalpindi, Pakistan: Two multi-site randomized controlled trials. . . . .	656
Examining the 'why' of the Thinking Healthy program by peers in Goa, India and Rawalpindi, Pakistan: Mediation and underlying processes. . . . .	656

**Differences in the behavior of offspring born to women in different cultural contexts and with different antenatal stressors**

Neurobehavioral and cognitive development in infants born to mothers with eating disorders. . . . .	657
Neonatal Behavioral Assessment Scale: One of many essential building blocks used in the BRIGHT project in The Gambia. . . . .	657
Maternal prenatal cortisol predicts infant negative emotionality in a sex-dependent manner. . . . .	657
Negative emotionality in the NBAS and Oppositional Defiant Disorder (ODD) symptoms at age 7 years: Findings from the Wirral Child Health and Development Study (WCHADS). . . . .	658

**Issues in screening for perinatal mental health**

To screen or not to screen? Challenges and considerations. . . . .	658
Identifying postnatal depression: Comparison of self-reported depression using a single item with Edinburgh Postnatal Depression Scale scores. . . . .	658
Assessing perinatal depression in refugee and labor migrant women on the Thai-Myanmar border. . . . .	659
The effectiveness of the two-item Generalized Anxiety Disorder Scale (GAD-2) in identifying anxiety disorders in early pregnancy. . . . .	659
A qualitative study of women's' experiences of being asked about mental health problems at antenatal booking appointments. . . . .	659

**Universal approaches to prevention of perinatal mental health problems**

- Gender-informed psycho-educational program to promote respectful relationships and prevent common mental disorders among primiparous women: Long-term follow-up of participants in a community-based cluster-randomized controlled trial. . . . . 660
- Learning clubs to improve women's health and infant's health and development in rural Vietnam: Acceptability, feasibility and indicators of impact of a multicomponent intervention. . . . . 660
- Shifting policy and practice to scale up prevention: Barriers and opportunities identified in a translational evaluation of WWWT. . . . . 660
- Creating a standardized curriculum in reproductive mental health. . . . . 661

**Mental health and mother-infant interactions**

- The impact of personality dysfunction in pregnancy on mother-infant interactions and bonding at 3 months postpartum. . . . . 661
- The joint contributions of maternal depression and infant negative emotionality to maternal sensitivity to infant distress. . . . . 661
- The impact of anxiety disorders in pregnancy on mother-infant interactions and bonding at 3 months postpartum. . . . . 662
- Mother-infant interactions in women with severe mental illness. . . . . 662
- Through babies' eyes: Recording parent infant interaction in the next generation of the Avon Longitudinal Study of Parents and Children. . . . . 662

**GAMMH Symposia**

- Addressing psychosocial vulnerabilities through antenatal care – Depression, suicidal ideation and behavior: A study of urban Sri Lankan women. . . . . 663

**Immune mechanisms of perinatal distress**

- How much maternal stress is needed to affect fetal outcomes in males versus females?. . . . . 663
- Emerging research in the microbiota-gut-brain axis and perinatal mood and anxiety disorders. . . . . 663
- Inflammatory markers across time in pregnancy and postpartum: Association with maternal mood. . . . . 664
- Immune dysregulation in pregnancy: Relationship with symptoms of depression and anxiety. . . . . 664

**New initiatives in perinatal mental health in Japan**

- The Japan Association of Obstetrics and Gynecology Perinatal Mental Health Project. . . . . 664
- Comparison of the Edinburgh Postnatal Depression Scale and Whooley's two questions in the screening of postpartum depression in Japan. . . . . 665
- Japanese women's perinatal mental health: Perspectives from the National Cohort Study in Tokyo. . . . . 665
- Recommendations on maternal safety based on the suicide cases in maternal death registration system in Japan. . . . . 665

**Mental health in pregnancy: New findings on epidemiology and interventions**

- Pregnancy-related specific phobias. . . . . 666
- Use of UK hospital data and mental health records to investigate maternal physical health and obstetric outcomes for pregnant women with serious mental illness. . . . . 666
- Pregnancy advice for women with bipolar disorder from generic psychiatrists to perinatal specialists. . . . . 666
- Patient Decision Aid (PDA) for antidepressant use in pregnancy: A pilot randomized controlled trial. . . . . 667
- Depression: An exploratory randomised controlled trial of antenatal guided self-help for women (DAWN). . . . . 667

**New interventions in promoting the mother-infant relationship in vulnerable dyads in pregnancy and the 1st year after childbirth**

- Thinking about your baby: Evaluating an antenatal session based on the Brazelton approach with young parents. . . . . 667
- Neonatal behavioral assessment scale in an early intervention service for at-risk newborns. . . . . 668
- Promoting mother-infant inter-subjective interaction in the context of perinatal mood and anxiety disorders: A feasibility study. . . . . 668
- Assessing the efficacy of an intervention to facilitate mind-mindedness in mothers hospitalized for severe mental illness and relation to later attachment security. . . . . 668

**The John Cox Symposium: Psychosocial interventions for maternal depression in Sub-Saharan Africa**

- Perceptions of perinatal depression and health care needs: A study to inform development of a psychosocial intervention for perinatal depression in Malawi. . . . . 669
- Outcomes of group problem solving therapy on maternal depression in primary health care settings in rural Uganda: An intervention cohort study. . . . . 669
- Feasibility and acceptability of a collaborative care model for maternal depression in a primary health care facility in South Africa: A pilot study. . . . . 669
- A comparison of the prevalence, correlates and outcomes of perinatal depression in adolescent and adult mothers – Results from the EXPONATE randomized controlled trial in Nigeria. . . . . 670
- Task sharing of psychological treatment for maternal depression in Khayelitsha, South Africa: A randomized controlled trial. . . . . 670

**Trauma and childbearing**

- Birth trauma and support: When 'good enough' isn't good enough. . . . . 670
- Development of an early intervention to prevent posttraumatic stress symptoms after traumatic childbirth. . . . . 671
- Preventing post-traumatic stress disorder: The Stress and Wellbeing after Childbirth Study (STRAWB2). . . . . 671
- Association between maternal childhood trauma and offspring childhood psychopathology: What have we learnt from longitudinal studies?. . . . . 672
- Mom Power: A multi-family intervention for mothers with childhood trauma histories and their young children, aimed to support mental health and parenting. . . . . 672

**Advances in the detection and screening for adverse childhood experiences in the perinatal period**

- Predictors and outcomes of maternal psychosocial risk profiles in pregnancy: Findings from the All Our Families study, Canada. . . . . 672
- Maternal childhood trauma and offspring childhood psychopathology. . . . . 672

Screening for childhood abuse in a sample of women treated in a UK mother-baby inpatient unit: Using the Childhood Experiences of Care and Abuse questionnaire. . . . .	673
Links between childhood emotional adversity and mental health: Crucial but under-researched and often misunderstood in perinatal mental health. . . . .	673
<b>Specialized care for mother-baby – Perspectives and collaboration from four countries</b>	
Perinatal care data from the Netherlands and a review of all international guidelines. . . . .	673
Can MBUs make a difference and how can we investigate their effectiveness? New and old methods and preliminary results from the UK. . . . .	674
Moving away from conventional outcome measures - Multidisciplinary approaches to measuring outcomes in an MBU in India. . . . .	674
Cross-continental collaboration for understanding postpartum major depression with psychotic features. . . . .	674
<b>Neurobiology of postpartum psychiatric disorders</b>	
Applying genetic risk scores to an ethnically diverse sample of postpartum women. . . . .	674
Immune dysfunction in postpartum psychosis. . . . .	675
Association between infant attachment behaviors and methylation of the Oxytocin Receptor Gene (OXTR): Findings from the ATP Generation 3 Study. . . . .	675
<b>Novel technological approaches to the delivery of perinatal mental health education and training for families and professionals in the UK</b>	
The role of co-creation in the development and implementation of the Baby Buddy app, a digital health intervention and its focus on maternal mental health. . . . .	675
The co-production of an animation film to raise awareness of the perinatal mental health care pathways among commissioners and providers. . . . .	676
Supporting infant mental health: An e-learning module developed for Health Education England's Healthcare Hub. . . . .	676
Perinatal mental health simulation: A novel and effective way of training a multidisciplinary audience to improve inter-professional working. . . . .	676
<b>ISPOG symposium: Comprehensive bio-psycho-social perinatal care when pregnancy is untimely or burdensome</b>	
Women's preferences for comprehensive psychosocial pregnancy advice and abortion care: Evidence and practice. . . . .	677
When pregnancy is at an early age: Comprehensive bio-psycho-social care for pregnancy teenagers. . . . .	677
Implementing a routine antenatal depression screening and psychosocial assessment program in a private obstetric setting in Australia: Learnings and challenges. . . . .	677
<b>Improving care for perinatal mood and anxiety disorders in the US and India: Progress, challenges, and potential solutions</b>	
How and when to screen for symptoms of postpartum depression: Results from a prospective cohort of pregnant rural Indian women. . . . .	678
Perinatal depression and anxiety – An interdisciplinary team facilitates implementation of the Council on Patient Safety in Women's Health Care Patient Safety Bundle. . . . .	678
Massachusetts Child Psychiatry Access Program (MCPAP) for Moms: Utilization and Quality Assessment. . . . .	678
Rationale and design of Peer Engagement to Enhance Resiliency (PEER) program to improve preconception mental health among Indian adolescents. . . . .	679
Implementing population-based perinatal depression programs in real-world obstetric settings in the US and India. . . . .	679
<b>Self-harm, near-miss deaths and perinatal mental health</b>	
Recognition and response to life-threatening events in the perinatal period. . . . .	679
<b>Breaking the cycle of intergenerational trauma: From risk to intervention</b>	
Biological sensitivity to early sexual abuse and relevance for maternal antenatal mental health. . . . .	680
Insightfulness and reflective capacity among mothers with histories of childhood maltreatment is associated with postpartum parenting. . . . .	680
Becoming a father in the context of domestic violence: Hopes and challenges. . . . .	681
Perinatal interventions for mothers and fathers who are survivors of childhood sexual abuse. . . . .	681
<b>Perinatal e-mental health support: Evidence and challenges in translation to practice</b>	
Perinatal e-mental health support: Evidence and challenges in translation to practice. . . . .	681
Regaining MUMentum: Findings from two randomized controlled trials evaluating brief internet cognitive behavioral therapy for perinatal distress, anxiety, and depression. . . . .	682
Online and mobile psychoeducation initiatives to prevent postnatal mental health problems: Research and evaluation. . . . .	682
Challenges of iCBT in research and clinical practice: A clinician's perspective. . . . .	682
<b>Complexity of childbirth</b>	
Exploring the psychological experiences of physiological childbirth: A meta synthesis. . . . .	683
Anonymous birth in the prevention of neonaticide: Perspectives of birth mothers. . . . .	683
Repeated neonaticide: Differences and similarities to single neonaticide events. . . . .	683
<b>Celebrating Prof Vivette Glover – A pioneer in perinatal psychobiology, and charting new frontiers in perinatal mental health</b>	
Children's social communication and attention difficulties are predicted from maternal prenatal anxiety and infection. . . . .	684
Maternal prenatal depression is associated with accelerated fetal development in two large, representative US samples. . . . .	684
Maternal antenatal depressive symptoms and its association with infant outcome; sex specific effects. . . . .	684
Early life influences on DNA methylome dynamics and relevance for child neurodevelopment. . . . .	684
<b>Perinatal research and clinical practice in south-east London: The experience of an academic health science center</b>	
Antenatal depression programs cortisol stress reactivity in offspring through increased maternal inflammation and cortisol in pregnancy: The Psychiatry Research and Motherhood Depression (PRAM-D) Study. . . . .	685
The neurobiological basis of puerperal psychosis: How biology and the environment interact with brain vulnerability. . . . .	685

Stillbirths and serious neonatal morbidity among psychiatric patients: A linked electronic healthcare database study. . . . .	686
Maternal trait anxiety at birth predicts mental health problems in children born very preterm. . . . .	686
Mental disorders in young pregnant women: Findings from an early pregnancy cohort. . . . .	686

**Father's and mother's mental health in traumatic situations: Infertility treatment, perinatal grief and migration –Symposium of French andPortuguese speaking regional groups of the MarcéSociety**

Parental adjustment and attitudes during the transition to parenthood: The effect of infertility treatment and depression in fathers. . . . .	687
Paternal antenatal attachment to the baby and emotional symptoms. . . . .	687
Fathers' experience of perinatal death: A potentially traumatic experience perinatal death: Can fathers be traumatized? . . . . .	687
Migration in the perinatal period and traumatism. . . . .	687

**Joint admission to mother-baby units**

Counting and reviewing maternal suicides in resource-limited settings: Lessons from Sri Lanka. . . . .	688
An MBU cannot function in isolation: The need for psychiatry to liaise actively with other specialties. . . . .	688
Mother and baby units matter: Improved outcomes for both. . . . .	688

**Assessing and addressing violence in the perinatal period**

Attitudes towards intimate partner violence against women among women and men in 39 low- and middle-income countries. . . . .	689
Intimate partner violence as an effect modifier for the impact of psychosocial interventions for women's mental health in LMICs: Systematic review and meta-analysis. . . . .	689
Cross-cultural assessment of intimate partner violence: No one size fits all!. . . . .	689

**BLITZ SESSIONS**

"Pregnant and incarcerated..." the development of a perinatal and infant mental health service for women in custody. . . . .	690
MotherHope Indonesia: Striving for perinatal mental health literacy in a low middle-income country. . . . .	690
Effect of the 2015 Nepal earthquakes on symptoms of common mental disorders among women who are pregnant. . . . .	690
Refining the development of a short mental health screening tool for use in low-resource, primary care settings. . . . .	691
Nurses perceived preparedness to screen, intervene, and refer suspected postpartum depression cases. . . . .	691
Self-report of depression care by obstetric providers in the context of state-wide program designed to increase frontline provider capacity to address perinatal depression. . . . .	691
Adherence and persistence to antidepressant medication during pregnancy: Does it differ by the class of antidepressant medication prescribed? . . . . .	692
Longitudinal association between child emotion regulation and aggression, and the role of early parenting: a comparison of three cultures. . . . .	692
Women's lived experiences and the psychiatric sequelae following a severe life-threatening event during pregnancy. . . . .	693
Breastfeeding and perinatal mental health: A dependence relationship. . . . .	693
Directed oocyte donation: crossed perspectives of the donor and the recipient couple. A Quebec research. . . . .	693
Father group leaders' experiences of creating an arena for father support – A qualitative study. . . . .	694

**BRIEF PRESENTATIONS**

"They don't ask so we don't talk" – Barriers and facilitators among low-income pregnant women in discussing mental health issues: A qualitative study from South India. . . . .	694
Postpartum psychosis in the 19th century: The earliest descriptions in North America in the work of Dr Richard Gundry. . . . .	694
Preliminary severity ranges for scores on the Edinburgh Postnatal Depression Scale. . . . .	695
Factors to mitigate the influence of maternal mental health on social-emotional development and behavior problems at age 2: The All Our Families cohort, Canada. . . . .	695
A novel community-based intervention to improve access to support for perinatal women through peer facilitation: a feasibility study with external pilot. . . . .	695
Screening for PPD at well-child visits: Making headway in Rhode Island, USA. . . . .	696
Integrating primal wisdom with modern science and practice as a global strategy for mothers, infants, families and communities. . . . .	696
Update on epigenetic biomarkers of postpartum depression. . . . .	696
The BDRN pregnancy study: Identifying risk factors for severe postpartum episodes in women with bipolar disorder. . . . .	697
Embedding maternal mental health into public health: Mental health care in the perinatal period – the 2017 Australian Clinical Practice Guideline. . . . .	697
DREAM BIG Collaboration: Prenatal stress and childhood psychopathology. . . . .	697
Maternal prenatal distress, mother-infant dyadic emotional availability and infant development: Findings from US and Australian cohorts. . . . .	698
Training in perinatal mental health for health practitioners. . . . .	698
Prevalence and determinants of common antenatal mental disorders among women in India: A systematic review. . . . .	698
Human rights, maternity, asylum and mental health illness in Stoke-on-Trent, UK. . . . .	699
Assessing and managing risk online: A clinician's perspective on internet-delivered intervention, 'MUMentum', for perinatal distress, anxiety, and depression. . . . .	699
Challenges in perinatal psychiatry for the young psychiatrist: Private practitioner's perspective. . . . .	699
Infant social experiences in challenging socioeconomic settings: A cross-cultural comparison. . . . .	700
The genetic basis for postpartum depression. . . . .	700
The impact of surrogacy on infant mental health: Review of the consequences from an ecosystemic approach. . . . .	700
Prevalence and determinants of domestic violence among pregnant women in a low resource setting in South Africa: A facility-based, mixed methods study. . . . .	700
Understanding mental health needs of women veterans during the peripartum period. . . . .	701
Efficacy and safety of Brexanolone injection, a GABA-A receptor modulator, in women with postpartum depression: Integrated analyses of clinical data. . . . .	701
Improving perinatal depression care in obstetric settings: PProgram in Support of Moms (PRISM). . . . .	702

**AWARD-WINNING POSTERS**

Somatic symptoms as indicators of depression in pregnancy. . . . .	702
Antenatal depression and mentalization in mother-infant interaction at 12 months. . . . .	702
Grandmothers need attention too! - Focusing on the mental health of grandmothers in a Perinatal Psychiatry Service in India. . . . .	703
Transition to fatherhood: Women's and men's speech in perinatal period. . . . .	703
Association of vitamin D receptor (VDR) Fok 1 and Taq 1 gene polymorphisms with vitamin D levels and susceptibility to postpartum depression in South Indian women. . . . .	703
Possible effects of breastfeeding on prenatal depression prediction of children's IQ and behavior. . . . .	704
Regaining 'MUMentum': Randomized controlled trial of online CBT for perinatal distress, anxiety, and depression. . . . .	704
An overview of EPDS scores over 10 years in a tertiary hospital in Singapore. . . . .	704
Validation of a Hindi version of the Edinburgh Postnatal Depression Scale as a screening tool for antenatal depression. . . . .	705
Assessment of Practice Readiness to Evaluate and address Perinatal Depression (PREPD). . . . .	705
Factors associated with contraceptive use in women with schizophrenia. . . . .	705
A retrospective case-note review of women with a diagnosis of postpartum psychosis admitted to Zomba Mental Hospital, Malawi. . . . .	706
Depression in pregnancy: Adverse obstetric and fetal outcomes. . . . .	706
Changes in mood, after screening for antenatal anxiety and depression. . . . .	706
Foreign accent syndrome in the perinatal period - A case study. . . . .	706

## PLENARY LECTURES

**[Presidential Keynote] Maternal mental health and the World Health Organization, UNICEF and World Bank 2018 Nurturing Care Framework**Jane Fisher<sup>1</sup><sup>1</sup>*School of Public Health and Preventive Medicine, Monash University, Melbourne, Victoria, Australia*

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Mental health problems among women who had recently given birth were first described in the scientific literature by clinicians in the 1850's. It took more than a century for the first epidemiological investigations of the nature and prevalence of these experiences to be published. These stimulated the major research efforts that have contributed substantial data to inform policies, training, health promotion and clinical practice in World Bank defined high-income countries.

It was argued that these problems do not occur in low- and middle-income countries because of the protections provided to women by traditional care. However, in the last two decades, substantial evidence has accrued that perinatal common mental disorders are experienced by at least twice as many women in these resource-constrained nations. These have adverse effects on health care participation, capacity to take up health promotion recommendations and caregiving capabilities.

At the same time there has been an international focus on disparities in early childhood development between and within nations, and recognition that unassisted maternal mental health problems are a risk for sub-optimal development.

The World Health Organization, UNICEF and the World Bank have collaborated to develop the Nurturing Care Framework for Early Childhood development. Launched at the World Health Assembly in 2018 it includes explicit recognition that caregiver mental health has to be addressed in order to improve the health of the population and the development of young children in all nations.

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**Suicide in women**

Lakshmi Vijayakumar

The rate of suicide among males is 18/100,000 and among females, 11/100,000 (WHO2014). Seventy-six (76%) percent of suicides occur in low- and middle-income countries (LAMICs). When mortality and morbidity data are combined, it is evident that the burden of suicide falls disproportionately on women (Vijayakumar, 2017).

Suicide is the leading cause of mortality for young women between 15 and 19 years of age. The male-female ratio of suicide in LAMICs is 1.5 compared 3.5 in high income countries signifying that more women die by suicide in these countries compared to woman in developed countries. Pregnancy, childhood abuse, intimate partner violence, marriage, mental disorder, and substance abuse have been significantly associated with suicidal behavior in women. Suicides due to family problems, marital conflict, love failure, extramarital affairs, divorce and illegitimate pregnancy and other conflicts related to marriage are common in Asian women. Unique cultural factors like dowry, one child norm, preference for male child are considerable stressors for young women of Asia. Traditional cultural systems that deny woman autonomy have also been shown to increase the risk of suicidal behaviors among women. (Canetto2015)

Prevention of suicide in women is closely linked to the cultural and social status that women occupy. For suicide prevention to be effective, the status of women in society needs to be systematically raised through empowerment programs focusing on education and employment, which will ultimately lead to social and economic independence. Suicide interventions must be multipronged and nested into existing platforms of social, educational and health services, for wide reach and better impact. Reducing suicides in woman is an urgent global public health priority.

**Keywords:**suicide, women, risk factors**References:**Vijayakumar, L. (2017). Suicide in women. *Indian Journal of Psychiatry*, 57(July 2015), 233–238. <https://doi.org/10.4103/0019-5545.161484>Canetto S.S. (2015) Suicidal behavior among Muslim women *Crisis* vol 36 (6) p 447-458.WHO (2014). *Preventing suicide - A global imperative*.

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**Perinatal depression globally: Myths and realities**Atif Rahman<sup>1,2</sup><sup>1</sup>*University of Liverpool, UK*<sup>2</sup>*Human Development Research Foundation, Pakistan*

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Perinatal depression (PND) globally has not received the type of attention given to many other public health priorities, especially in low- and middle-income countries (LAMICs). Several 'myths' about mental health have contributed to this state of affairs. These include, a) PND is relatively uncommon in LAMICs; b) it does not affect the child; c) only specialists can provide treatment, especially psychological interventions; d) it is not possible to integrate maternal mental health in maternal and child health care, and; e) it is not possible to scale-up interventions for perinatal mental health without huge additional costs. Strong and emerging evidence from LAMICs dispels each of these myths. Systematic reviews and meta-analyses estimate prevalence of PND in LAMICs to range from 15-20%. Several cross-sectional and cohort studies indicate that PND severely impacts child physical, cognitive and socio-emotional development and is a barrier to optimal infant-care. Research on 'task-shifting' strategies demonstrates that evidence-based psychological interventions can be delivered effectively by community-health workers and even peers, working under supervision of specialists. These advances make it possible to integrate effective interventions into mainstream maternal and child health programs. Ongoing research and innovation to refine such approaches, for example, through the use of technology, is leading to rapid progress in the field. However, further progress will be slow unless policy-makers, implementation agencies and funders understand that maternal mental health is a huge public health issue that needs to be treated at par with physical health concerns.

**Keywords:** perinatal depression; low- and middle-income countries; maternal mental health**References:**Rahman A, Surkan PJ, Claudina E, Cayetano CE, Rwagatare P, Dickson KE. (2013) Grand Challenges: Integrating Maternal Mental Health into Maternal and Child Health Programmes. *PLoS Med*.10(5):e1001442.Rahman A., Fisher J, Bower P, Luchters S, Tran T, Yasamy MT, Waheed, W (2013) Interventions for common perinatal mental disorders in women in low- and middle-income countries: a systematic review and meta-analysis. *Bulletin of the World Health Organization*, 91:593–601

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**Perinatal trauma**Bryanne Barnett<sup>1</sup><sup>1</sup>*School of Psychiatry, Faculty of Medicine, University of New South Wales, Australia*

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This talk honors both the truly global contributions to the perinatal field of Professor John Cox and his generous support of my own endeavors as a child and family psychiatrist. His establishment of a dedicated community mother-baby clinic at Stoke-on-Trent influenced me while on sabbatical and he subsequently encouraged staff exchange between England and Australia to develop the model.

My wish was to deconstruct "Postnatal Depression", ensuring that the many comorbidities and complex issues (including context; past history; social determinants of health; physical health) are recognized and

addressed. Such an aim requires that not only illness, but also risk and vulnerability are identified and appropriate resources provided to address them. Also relevant are the experiences of partners, families, and the health professionals themselves.

Trauma, for example, is significant though often underdiagnosed, and acknowledged. It too is a complex matter, including: grief, loss, infertility, miscarriage, termination, pre-eclampsia, delivery complications, emergency action, unwell infants, inter alia, and often against a background of past unresolved loss, trauma and other adverse experiences.

One focus is birth-related trauma, with acute and enduring physical and psychosocial manifestations. Damage through cuts, tears, fistulas and muscular avulsion is not confined to low-income, poorly resourced countries. Such problems are now common in affluent settings, where women may have their first pregnancy at a later age and staff may be under pressure to avoid caesarean section and hasten delivery through induction and/or use of forceps. Multiple complaints include lack of respectful discussion or explanation, and inadequate follow-up. Nevertheless, research indicates that the extent of the damage is often not commensurate with the complaints. The hazardous perinatal voyage is best undertaken in the company of a competent, caring clinician. Someone who can be trusted and, if problems arise that threaten or rupture the relationship, knows how to carry out the necessary repair.

**Keywords:** perinatal trauma; birth trauma; attachment

**References:**

[www.birthtrauma.org.au](http://www.birthtrauma.org.au)  
[www.birthtraumaassociation.org.uk](http://www.birthtraumaassociation.org.uk)  
[www.unfoldyourwings.co.uk](http://www.unfoldyourwings.co.uk)

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**Perinatal depression in women: Why be concerned? What can we do about it?**

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From a developmental psychopathology perspective, my talk provides evidence to support why we should be concerned about perinatal depression and what we can do about it. In terms of empirical support for the concern, I review findings on women who experience depression during pregnancy and during the postpartum, infants who were born to women with depression during pregnancy and raised by women with depression during the postpartum, and how it is that depression comes to be associated with infant functioning. For the latter point, I discuss a conceptual model for mechanisms in the transmission of risk from depression in mothers to their children, with a focus on parenting. Having argued for the bases for being concerned about perinatal depression, I then turn to the second question, what can we do about it? In addressing that question, I present support for selective prevention as an approach and, in particular, for mindfulness-based cognitive therapy adapted for the prevention of depression relapse/recurrence during pregnancy and the postpartum. I also present options for treating ante- or post-natal depression and the findings that suggest that treating depression in mothers may not be sufficient to address the children's needs. Thus, I conclude by arguing for the importance of targeting interventions to children's vulnerabilities to the development of psychopathology and targeting the mechanisms that help to explain associations between depression in mothers and adverse outcomes in their children.

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**CONFERENCE ABSTRACTS**

***The effects of prenatal stress on the fetus; starting to understand the underlying mechanisms***

**Blinking in the dark: Effects of maternal anxiety and depression on fetal reactions to sound and light**

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**Objectives/Background:** A number of studies using postnatal assessment methods have claimed that fetal neurodevelopment is affected by maternal mental health with an increased postnatal risk for neurodevelopmental disorders. The aim of the current study was to assess prenatally whether fetal reactions to sound and light stimulation vary with maternal levels of anxiety, stress and depression as measured by rate of fetal eye blink.

**Methods:** Pregnant women (mean gestational age = 32 weeks) completed the Perceived Stress Scale (PSS) and the Hospital Anxiety and Depression Scale (HADS). A 4D ultrasound scan lasting 15-20 minutes was performed during which in the experimental group was presented randomly with a stationary flashing red light, the flashing light together with one of four sounds as well as 4 different sounds without light stimulation. Eye-blink frequency was tested in 21 fetuses (13 female, mean gestational age = 32 weeks). A control group of fetuses (N=14, 7 female, mean gestational age = 32 weeks) not receiving any stimulation was also assessed in terms of eye-blink frequency.

**Results:** Fetal eye-blink rate during experimental stimulation was significantly associated with maternal mental state with a 20% increase of fetal eye-blink rate for each unit increase in anxiety score (p=0.02) and a decrease of 21% of eye blink rate for each unit of increase in depression score (p=0.02). In addition, sound stimulation but not light stimulation significantly affected blink-rate; interestingly, fetuses also habituated to the stimulus presentation (p<0.001).

**Conclusion:** This study demonstrated that fetuses react with increased eye-blink-rate when exposed to sound stimulation and that maternal anxiety and depression are associated with fetal eye blink rate during experimental stimulation.

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**Birth of the blues – the effects of prenatal depression on the infant brain**

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**Objectives/Background:** Individuals born to depressed mothers are vulnerable to depression across their lifespan. This vulnerability may be underpinned by a neural bias towards emotionally negative stimuli, induced by the prenatal exposure of the fetal brain to maternal depression.

**Methodology:** To test this hypothesis, we used functional Magnetic Resonance Imaging (fMRI) in 81 full-term infants (37-42 weeks gestation), aged 4-6 months, with normal birth weight (> 2,500g). Infants were recruited from perinatal services and antenatal clinics within the same community in South East London. They included, respectively, 41 infants exposed to mothers diagnosed with prenatal major depressive disorder (MDD), assessed using the Structural Clinical Interview for DSM-IV Disorders (SCID), 36 infants born to mothers without MDD, and 4 infants born to women with a history of depression only and, therefore, not included in the current study. In the MDD group, 29 infants were successfully scanned and

included in the current analyses. Twelve infants were excluded as they woke up before the start (n=2) or during the middle (n=10) of the fMRI task. In the non-depressed women, 29 were successfully scanned, with 7 excluded due to the infants waking up before (n=1) or during (n=6) the fMRI task.

**Results:** Compared to infants born to non-depressed mothers, offspring exposed to MDD in utero exhibited a relative hyper-activation to sad, and hypo-activation to happy, sounds in frontal-limbic brain regions.

**Conclusion:** Our findings are consistent with the attentional biases reported in depressed adults, and provide evidence for a neural mechanism for vulnerability to depression during early brain development.

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### Functional neuroimaging correlates of maternal antenatal stress and amniotic fluid cortisol levels and sustained attention in children aged 6-9 years

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**Background:** Maternal prenatal stress, is associated with elevated risk of adverse behavioral outcomes in offspring, such as conduct problems, impulsivity, and attention deficit/hyperactivity disorder. It has been suggested that exposure to elevated cortisol in utero may be one mediating mechanism. This association may involve developmental disruption to brain networks underlying executive function. Deficits in inhibition and sustained attention have been reported in children born to mothers who suffered from anxiety in pregnancy. However, to date no study has examined the neural bases of these effects of maternal prenatal mood on child executive function, nor any association with in utero cortisol.

**Method:** 32 healthy children (age 6-9 years) of mothers recruited having an amniocentesis in pregnancy underwent functional magnetic resonance imaging (fMRI) while performing a rewarded continuous performance task that assessed sustained attention and the effects of reward. Children's brain activations were examined in relation to maternal antenatal stressful life events and amniotic fluid cortisol concentration.

**Results:** We found brain activation in temporal lobe, amygdala, and cingulate gyrus for sustained attention and in posterior cingulate, frontal and temporal gyrus for rewarded attention that was significantly associated with both the maternal antenatal variables. However the patterns of association with prenatal stressful life events and utero cortisol were different. There were no such associations with postnatal stressful life events or postnatal maternal mood.

**Conclusion:** Both prenatal stressful life events and amniotic fluid cortisol levels were associated with the patterns of fMRI obtained when children performed a continuous performance task. Several of the associations observed could be indicative of more problems with sustained attention. However the different patterns of associations observed suggest that the effects of the prenatal stress were not solely mediated via cortisol. This is the first report of an association between in utero cortisol exposure and later brain function in children.

**Keywords:** # fMRI, maternal stress, neuroimaging, sustained attention, continuous performance task.

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### Depression in pregnancy, risk factors and sex specific placental gene expression

Sumption, L, Janssen, AB, Savory, K, Garcia-Martin, I, Savory, N, Penketh, R, Jones, I and John RM<sup>1</sup>

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**Background:** In 2015, we initiated a MRC funded study to explore prenatal and postnatal maternal mood in a local Welsh population (Cardiff, UK) in relation to gene expression in the placenta and infant outcomes

**Method:** Women were recruited immediately prior to an elective caesarian delivery, prenatal and early postnatal prevalence of anxiety and depression was determined using validated self reporting questionnaires (EPDS and STAI) and analyzed with respect to risk factors previously linked to antenatal depression, birth outcomes and infant characteristic at 12 months. Placental gene expression was analyzed in relation to mood symptoms and specific birth characteristics.

**Results:** Our findings in Wales mirror the high prevalence of both depressive and anxiety symptoms in late pregnancy and progression to postnatal mood symptoms reported in other similar studies. Risk factors for depression in Welsh Caucasian women were low educational attainment, low income, high BMI, smoking and previous history of mental health issues. RNA sequencing revealed differences in gene expression in the placenta of boys exposed to prenatal depression that were not present in the placenta of girls, and vice versa. Placental expression of the imprinted genes PEG3, MIMT1, ZIM2 and ZNF264 was significantly lower in male placenta from mothers with high EPDS/STAI scores (EBM P value = 0.0309; Fisher P value = 0.008; scale factor C = 1.846, degrees of freedom = 4.333) but not female placenta (EPM P value = 0.857; Fisher P value = 0.909; scale factor C = 1.400; degrees of freedom = 5.713). Normal expression of PEG10 and IGF2 indicated a PEG3 domain-specific association. Animal studies suggest a role for PEG3 in regulating birth weight, maternal behavior in females and sexual behavior in males.

**Conclusions:** Several studies report sex-specific differences in outcomes for boys and girls after exposure to prenatal depression. Our studies suggest a key role for the placenta in mediating this relationship.

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### Reaching women who do not have access to support

#### Maternal mental health services in India: Treatment gap and missed opportunities

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**Background & Aim:** Treatment gap—used to measure the access to health care services—assumes availability of services to obtain care. In the Indian context, maternal mental health is a special perspective where services are potentially available but not delivered. We argue and advocate the need for integrating mental health care into MCHcare.

**Methodology:** Review of results from National Family Health Survey (2015-16), Rural Health Statistics 2015-16, Annual report of ICDS-2016.

**Results:** In India, platforms for maternal mental health services are three-fold. Firstly, consolidating its three-tier primary health care delivery (against 30,000 population coverage norm), primary health centers cater to 32,884 persons, (25 villages in 6.24 kms radius); surprisingly, shortfall of female health workers at sub-centers is 5.3%. The allocation for antenatal and postnatal care related activities is 35% of total allocation. Second platform is the huge but largely un-regulated private sector which caters to about 69% of primary care across the country. Third platform is health-related services across the country through Integrated Child Development Services (1,349,153 centers registered 18,991,539 pregnant and lactating women as beneficiaries). NFHS-4 observed that 59% of the mothers had ante-natal checkups in the first trimester. Institutional deliveries doubled during the past decade (38.7% to 78.9%) and 62.4% had a post-natal checkup within 2-days after delivery. Amidst this narrative, despite several studies documenting that nearly one-fifth of the ante- and post-natal women need care for mental health issues, mental health of the mother is rarely addressed. In this context, despite access to health care, services for maternal mental health is a huge missed opportunity.

**Conclusion:** For India, an integrated stepped care model is thus an urgent need which would ensure that women who have access to services are not denied mental health care.

**Keywords:** India, treatment gap, maternal mental health services

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#### Barriers and solutions for improvement of access to care for vulnerable mothers in France

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**Background & Aim:** In France, guidelines for perinatal health have been developed for different counties, following national specifications. Among these, is the implementation of an Early Prenatal Interview (EPI) which is specifically aimed at defining physical and mental health benchmarks for prenatal couples. However, results found in a large representative French sample (the ELFE study) reveal that the EPI has mainly included populations with a high socio-demographic status, and has highlighted that access to care of the most vulnerable women remains an issue during the perinatal period. This presentation will describe and discuss an original, coordinated and graduated perinatal mental health preventive and care system developed in a French county, Gironde.

**Methodology:** The collaboration between the local perinatal psychiatry network and the obstetrical, pediatric and social teams tends to allow the development of a network of professional that facilitates the access to care of the most vulnerable populations of women (that is, mothers with serious psychiatric disorders, migrants, single mothers, and those with domestic violence).

**Results:** The population of vulnerable women and their infants have access to joint care (from parent- infant psychotherapies to mother and baby full-time hospitalization) which is nested in a larger network of perinatal health professional. The issue of the frontier between child development prevention and child protection in terms of development remains unsatisfactorily answered.

**Conclusion:** The issue of access to care of the most vulnerable population of women during the perinatal period goes beyond the field of mental health and may require the development of common collaborations and guidelines with the services in charge of protection of children.

**Keywords:** France, access to care, maternal perinatal vulnerabilities, protection of child development

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#### Barriers and solutions for the promotion of mothers and fathers' perinatal mental health in Portugal

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**Background & Aim:** Guidelines to promote mothers' and fathers' perinatal mental health in Portugal will be introduced and discussed in this communication.

**Methodology:** The current situation regarding mothers' and fathers' perinatal mental health and perinatal mental health care in Portugal was taken into account. Official guidelines developed as part of the directorate-general of health were analyzed. The dissemination and the effectiveness of these guidelines were assessed.

**Results:** The scope of what has been done to date, namely in terms of barriers and solutions for the promotion of mothers' and fathers' perinatal mental health in Portugal, is insufficient.

**Conclusion:** New guidelines and proposed actions are required to promote mothers' and fathers' perinatal mental health. We conclude that there is a need to take into account the contributions from the experience in other countries and the joint contributions from research, training, actions and public health policies.

**Keywords:** Portugal, perinatal mental health; guidelines; barriers; solutions

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#### MUMSPACE: Increasing reach via online perinatal mental health tools

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**Background & Aim:** In Australia, the recent National Mental Health Plan advocates e-mental health tools to increase access to care for mental health difficulties. This is particularly relevant for the perinatal period as we know many women find it difficult to access care.

**Methodology:** A perinatal mental health stepped-care model has been developed by the Perinatal Depression e-Consortium (PDeC), supported by funding from the Australian Government. This collaboration has delivered a central website for perinatal mental health care that enables consumers to readily step-up to higher-intensity services, or transition down to lower-intensity supports, as needs change.

**Results:** A national website, MumSpace (mumspace.com.au), organizes new and existing online tools, resources and supports for easy access. Parenting and relationship tools are offered at the universal level. A new smartphone app, MindMum is designed for women with sub-clinical symptoms of depression and anxiety or with significant risk factors (e.g., history of mental health difficulties). The model enables consumers to step-up to specialized online interventions suitable for treatment of moderate to severe perinatal depression and anxiety or to traditional specialist services, when needed. These include a suite of evidence-based online psychological treatment programs designed for women with depression and anxiety, both in pregnancy and postpartum (Mum2BMoodBooster, MumMoodBooster). The MumMoodBooster programs are self-paced, highly interactive and embody Cognitive Behavioral Therapy elements within a user experience that is designed to be closely comparable to proven face-to-face treatments for perinatal depression. They have been validated as effective in Australian and US populations and are delivered using low-intensity telephone or SMS support. At the same time a clinical decision support system (CDSS) for health professionals to use in conjunction with electronic screening is being developed.

**Conclusion:** The approach aims to ensure ready online access to perinatal mental health tools, beginning with those suited to the whole population (fostering resilience, mental health promotion and prevention). MumSpace and products are also included in the just-released national Head to Health digital mental health gateway.

**Keywords:** Australia, perinatal depression, CBT, internet treatment, access to care

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**What can we do to reach women?**Alain Gregoire<sup>1,2</sup><sup>1</sup>Maternal Mental Health Alliance, London, UK<sup>2</sup>Global Alliance for Maternal Mental Health

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**Background & Aim:** Dr Alain Gregoire also leads the Global Alliance for Maternal Mental Health (GAMMH) which seeks to provide, with a single united voice, a call for better perinatal mental health care and achieve political support and investment.

**Methodology:** Dr Alain Gregoire will act as discussant and distill key messages from the presentations in this symposium. He will also talk about some of the works of the Global Alliance for Maternal Mental Health which aims to increase the reach of services to women across the world including low income countries. National trends in perinatal mental health care will be summarized including issues such as highly specialized services (MBUs).

**Conclusion:** Given the prevalence of perinatal mental health difficulties, creative approaches around the world can be shared to reach women to increase support.

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**Cross-cultural issues in mother-infant caregiving - findings from the Indo-UK collaborative Bangalore Child Health and Development study**

**Maternal anxiety mediates the link between partner psychological abuse and infant anger prone temperament in the Bangalore Child Health and Development study**

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**Background & Aim:** The quality of the parental relationship is known to influence maternal perinatal mental health, which may in turn impact the infant. Data from India has shown high rates of intimate partner violence in the perinatal period. The majority of previous work in this area has been conducted in Western settings and there is a need to do more cross-cultural studies. We aimed to test relationships between maternal mental health, partner relationship quality and infant outcomes. Associations between partner psychological abuse and infant anger prone temperament were studied and we hypothesized that this would be mediated by maternal anxiety levels.

**Methodology:** Participants were 316 mothers enrolled in the prospective, longitudinal Bangalore Child Health and Development Study (BCHADS). The BCHADS follows up a cohort of 902 mothers from pregnancy till the child is two years old. Mothers and infants go through a series of assessments at various time points. In this study, we report cross-sectional data gathered at 6-9 months postpartum. All mothers reported on their experience of psychological abuse since birth (partner perpetrated abuse and mother perpetrated abuse) using the Dunedin Relationship Scales (Moffitt et al., 1997), their current levels of State Anxiety (State-Trait Anxiety Inventor STAI; Spielberger et al, 1983) and their infant's anger proneness (Infant Behavior Questionnaire IBQ-R; Gartstein & Rothbart 2003). Linear regression models were employed to assess the relationship between partner psychological abuse, maternal anxiety and infant temperament. All analyses controlled for maternal age and socio-economic status.

**Results:** Regression analyses revealed partner perpetrated abuse and mother perpetrated abuse were each positively associated with child anger proneness respectively ( $b=0.604$ ,  $SE=0.172$ ,  $p<.001$ ;  $b=1.169$ ,  $SE=0.318$ ,  $p<.001$ ) and with maternal anxiety ( $b=2.270$ ,  $SE=0.175$ ,  $p<.001$ ;  $b=3.013$ ,  $SE=0.365$ ,  $p<.001$ ). However, while maternal anxiety fully mediated the effect of partner perpetrated abuse on infant anger proneness, mother perpetrated abuse did not.

**Conclusion:** While it is known that partner violence impacts maternal mood, this study also emphasizes the role of partner abuse on the infant's temperament.

**Key words:** Anxiety, abuse, maternal, Bangalore

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**Similarities and differences in early infant care in UK and India: A psychometric comparison using the parent-infant caregiving touch scale**Andrew Pickles<sup>1</sup>, Laura Bozicevic<sup>2</sup>, Jonathan Hill<sup>3</sup>, Helen Sharp<sup>2</sup>, Geeta Desai<sup>4</sup>, Prabha Chandra<sup>4</sup><sup>1</sup>Kings College London<sup>2</sup>University of Liverpool, UK<sup>3</sup>University of Reading, UK<sup>4</sup>NIMHANS, Bangalore, India

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**Background & Aim:** Anecdotes have suggested substantial differences exist in the manner in which infants are cared for in India and the UK. As part of the Wirral Child Health and Development Study, a questionnaire, the Parent-Infant Caregiving Touch Scale, consisting of 12 five-category (1=never, 5=a lot) Likert items (Koukounari et al., 2015), was developed to provide a quantitative characterization and subsequently included in the Bangalore Child Health and Development Study. We assess the comparative psychometric properties in India and the UK, and examine the comparative treatment of girl and boy infants in the two cities. We focus on the "stroking" of infants because of its apparent role in programming of the HPA axis function (Murgatroyd et al., 2015) and the prevalence of infant massage in India.

**Methodology:** We analyzed 882 (UK) and 460 (India) PICTS completed when the children were age between 9 and 12 weeks. Using factor analysis and models based on Item Response Theory (IRT) we examined the extent to which the structure of the patterns of parenting are similar in the two settings. Focusing on the items associated with stroking that show measurement invariance, we use structural equation modelling to examine sex differences in the UK and India.

**Results:** Factor analysis did not support measurement invariance for the complete PICTS but the four stroking items (Tummy, Back, Face and Limbs) loaded strongly together in both countries. Item characteristic curves from the IRT analysis of these four items suggested that the Face item performed relatively poorly in the Indian population. A structural equation model of the remaining 3 stroking items showed substantial differences in the reported frequency of stroking, but no differences between boys and girls in either country.

**Conclusion:** Maternal responses to items assessing stroking baby's tummy, back and limbs as part of early caregiving cohered in both the UK and India and reports were not different for boys and girl babies, but the frequency of stroking reported varied across cultures.

**Keywords:** Factor analysis, Caregiving

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**Conceptualizing cross-cultural differences in early caregiving: Comparative levels of instruction and mind-mindedness in UK and Indian samples**Laura Bozicevic<sup>1</sup>, Agni Omirou<sup>2</sup>, Chaithra Holla<sup>3</sup>, Helen Sharp<sup>1</sup>, Jonathan Hill<sup>2</sup>, Prabha Chandra<sup>3</sup><sup>1</sup>University of Liverpool<sup>2</sup>School of Psychology and Clinical Language Sciences, University of Reading, Reading, UK<sup>3</sup>Department of Psychiatry, National Institute of Mental Health and Neurosciences, Bangalore, India<sup>4</sup>Department of Psychological Sciences, University of Liverpool, UK

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**Background & Aim:** Parental practices have a great impact on various aspects of child emotional and social development and they are in turn influenced by cultural attitudes. Although most cross-cultural studies

comparing Western with non-Western populations report significant differences in broad dimensions of authoritarian and authoritative parenting styles, cultural differences in specific dimensions of parenting are still under-explored. Therefore, we examined the influence of culture on early caregiving practices in two samples, one representative of the Western culture (UK) and the other representative of the South Asian culture (India).

**Methodology:** Videos of 100 mother-infant dyads interacting during play were recorded when the infants were six months of age. Fifty were from the UK (Wirral Child Health and Development Study) and fifty from India (Bangalore Child Health and Development Study). Maternal speech was transcribed and coded for mind-mindedness, verbal control (mild and strong), positive and negative comments. Additionally, newly developed scales for the assessment of instructions was used to capture a different way to conceptualize control suggested to be more typical of some Asian populations.

**Results:** Cultural differences in parental practices emerged from T-test and Chi Square analyses: UK mothers expressed more mind-minded comments in their interactions and use more mild control (e.g. suggesting, prompting actions, etc.) compared to Indian mothers who were overall more controlling and specifically used strong control (e.g. commands, direct requests), gave more instructions and made more positive comments toward their children (all  $p < .001$ ). No differences emerged between the two groups in the maternal negative comments towards their children. Exploring in the whole sample the relationship between different caregiving practices, considering the novelty of the scales introduced, positive and negative associations will be discussed ( $p < .001$ ).

**Conclusion:** Cultural differences in parental practices that appear to reflect cultural attitudes previously suggested in literature were found and the new scales created contributed to highlight and clarify these group differences. Further research with a wider sample allowing the analysis of subcategories of parental practices should be conducted. Additionally, the influence of culture and caregiving practices on child developmental outcomes should be explored.

**Keywords:** Instruction, mind-mindedness

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### *Emerging frontiers in infant mental health*

#### **Overview of infant mental health (IMH) and its status in India**

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**Background and aims:** Infant mental health refers to how well a child develops socially and emotionally from birth to the age of three. It is a well-established subspecialty in child and adolescent psychiatry in many western countries, but extremely limited in its reach in developing countries including India. The 2011 Indian statistics estimate the population of children under 4 at 9.7 percent, and an estimated 27 million births every year in the second most highly populated country in the world. This along with increasing evidence to indicate a rise in emotional and behavioral problems in children warrants an exploration into the status of IMH in India.

To provide a broad overview of infant mental health and explore the scope, need and presence of the field in India and provide recommendations for development of this much needed sub-specialty in India.

**Methodology:** This part of the symposium will introduce IMH and utilize the existing data globally and locally regarding IMH and highlight the need for specialist services for children under the age of three.

**Conclusion:** There are limited child and adolescent mental health services in India, which are restricted to big cities and tertiary level organizations. Access to mental health services for infants with mental, emotional, developmental or behavioral disorders are substandard, not provided early enough, and only accessible to a small fraction of the children and adolescent population. Identifying problems early and intervening at the right time will be cost effective, as this will prevent further deterioration and disability, as they grow older.

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### **Landmark studies, diagnostic systems, assessments and management in infant mental health**

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**Background and Aims:** There is sparse literature from developing countries such as India in the context of original research, clinical care, and service development in infant and toddler mental health. The aims and objectives of the symposium are to sensitize the mental health professionals about infant mental health, with special focus on landmark studies, diagnostic Systems, assessments and management in infant mental health.

**Methodology:** This symposium presentation shall cover landmark epidemiological studies in infant mental health and key studies on perinatal psychiatric disorders and impact on infant mental health. Principles of assessments of infant mental health, history taking and MSE of infants, interview techniques in infants, rating scales and assessment tools for infant mental health shall be covered. The symposium shall also highlight need for infant-centric diagnostic classificatory systems. Evidence-based clinical management of infant mental health shall be discussed.

**Conclusion:** The symposium shall provide directions for clinical care and future original research in infant mental health care.

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### **Developmental and psychosocial intervention**

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**Background and Aims:** Infancy, defined as 0-3 years, is a crucial period for development. Several changes happen during this period in terms of neurodevelopmental, psychological, physical, communication, cognitive and social skills that lay foundations for future, successful adaptation to the environment. Some infants, for instance, those with maternal perinatal psychiatric illnesses are at a higher risk for developmental and mental health problems. However, evidence suggests that timely psychosocial intervention in a developmental framework is very helpful to alter any atypicality in the development. In this context, the aims of this study are as following: To provide a broad overview of infant development between 0-3 years; various protective and risk factors of development; to understand the scope and principles of developmental and psychosocial intervention with special reference to maternal perinatal psychiatric illnesses.

**Methodology:** This part of the symposium will provide an introduction to developmental and mental health problems in infants based on a systematic review of literature and the evidence from the chart review of infants and toddlers receiving developmental interventions under the NIMHANS Perinatal Psychiatric Services.

**Conclusion:** Infant developmental and mental health problems need to be identified and intervened at the earliest so as to prevent or minimize the secondary disabilities. Infants of mothers with perinatal psychiatric illnesses are at a greater risk for developmental and mental health problems, which could be prevented or minimized with appropriate, early intervention.

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### *The impact of antenatal depression on child outcomes – current evidence on impact and management*

#### **Opening windows of opportunities: Evaluating the impact of prenatal intervention to support maternal mood to change developmental trajectories of psychopathology risk among infants.**

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**Background & Aim:** Although animal models and correlational studies support a model of fetal programming as a mechanism in the transmission of risk for psychopathology from parents to children, experimental studies are required with the human prenatal dyad to empirically test the model. Yet experimental studies of putative mechanisms of risk transmission processes with humans are scarce. Aims were (1) to critically examine the evidence regarding the neurobiological and behavioral changes in infants as a function of randomized clinical trials (RCTs) to prevent or reduce depression in women during pregnancy, treating RCTs as experiments testing the proposed model; (2) to consider the implications of the findings for clinical practice and theory.

**Methodology:** We conducted a systematic review of the literature in which researchers manipulated mood in women during pregnancy and measured offspring neurobiological and behavioral outcomes. After registering our review (PROSPERO), we conducted a literature search; 25 articles met inclusion criteria.

**Results:** We found support for interventions designed to change maternal prenatal mood being associated with changes in child functioning overall and, specifically, infants Brazelton Neonatal Behavioral Assessment (NBAS) and Dysregulation. Effect sizes of interventions on child functioning were larger for younger children relative to older children. Effect sizes ranged broadly, within and across offspring functioning domains, reflecting variability in timing and nature of intervention and other study design features.

**Conclusion:** Several key infant vulnerability indices are associated with experimental manipulation of maternal mood during pregnancy, with a broad range of effect sizes. We detail implications for understanding putative mechanisms in the transmission of risk from women's prenatal depression to infant's vulnerabilities to, and early signs of, the development of psychopathology and for clinical practice. We note limitations of the literature and suggest solutions to advance understanding of how preventing or treating depression in pregnant women might disrupt the transmission of risk to the infants.

**Keywords:** Antenatal depression, fetal programming, child psychopathology, mechanisms

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### Household confusion, maternal depression and prenatal SSRI exposure and self-regulation from infancy to 6 years

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**Background & Aim:** Long after birth, maternal mood during and following pregnancy still shapes emerging self-regulation in childhood. To investigate the impact of perinatal maternal depressed mood, we undertook the following study to determine relationships between infant temperament, household confusion and self-regulation in children of depressed mothers. Moreover, we also sought to determine whether this relationship is mediated by prenatal serotonin reuptake inhibitor (SRI) antidepressant exposure.

**Methodology:** Regression models examined the impact of maternal depressed mood symptoms (3rd trimester and at 6 years), infant temperament (IBQ 6 mo) and household confusion (Confusion, Hubbub, and Order Scale [CHAOS]) on child self-regulation (Behavior Rating Inventory of Executive Function [BRIEF]) at age 6 years (N=118 [47 prenatally SSRI

exposed, 71 nonexposed]). Confirmatory regression models were also conducted to examine if children were susceptible to household CHAOS or were positively influenced by lower household CHAOS.

**Results:** Prenatal SSRI exposure, 3rd trimester maternal depressed mood and home chaos predicted measures of self-regulation when CHAOS scores were low, children of non-prenatally depressed mothers had better self-regulation than children of prenatally depressed mothers, regardless of whether they were treated with an SRI, or were depressed at study day. However, when home confusion was high, SRI-exposed children whose mothers were not prenatally depressed (their symptoms had remitted) had poorer self-regulation than children of prenatally depressed mothers. Infant temperament did not add to 6-year behavior in the model.

**Conclusion:** Susceptibility to household chaos depended on whether mothers were prenatally depressed and whether mothers were SSRI-treated. Children of prenatally symptomatic mothers were not affected by household confusion, whereas, children of not particularly symptomatic mothers were affected by confusion, but the degree to which they were affected depended on a child's prenatal SRI exposure status. In low levels of confusion SRI-exposed children had better self-regulation compared with non-exposed children. Exposure to prenatal depressed maternal mood may buffer a child against a subsequently chaotic home environment, whereas prenatal SRI exposure may increase a susceptibility to home confusion.

**Keywords:** Maternal depression, prenatal, infant temperament, household confusion, self-regulation, SSRI

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### Maternal antenatal mood and child development: an exploratory study of treatment effects on child outcomes up to 5 years

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**Background & Aim:** Effective treatment of maternal antenatal depression may ameliorate adverse neuro-developmental outcomes in offspring. We followed up children whose mothers had received either specialized cognitive-behavioral therapy or routine care for depression while pregnant in a randomized controlled trial (RCT).

**Methodology:** Of the original cohort of 54 women followed up to 9 months, renewed consent was given by 28 women for 2-year follow-up and 24 women for 5-year follow-up. Assessments included the Parenting Stress Index (PSI), Bayley Scales of Infant Development (BSID-III), Child Behavior Checklist (CBCL), Wechsler Preschool and Primary Scales of Intelligence (WPPSI-III), Beck Depression Inventory (BDI-II) and Beck Anxiety inventory (BAI).

**Results:** The RCT (n=54) showed excellent adherence and acceptability and supported the efficacy of the treatment. Strong reductions in anxiety were observed during pregnancy, and improvements in depression were maintained at 9 months representing a moderately large effect size. Nine-month infant outcomes showed several medium to large effects favoring the intervention in domains including problem solving, self-regulation and stress reactivity, which were independent of maternal postnatal mood. At 2 years, intervention effects were found with lower scores on the PSI Total, Child domain and adaptability subscale (d = 1.53, 1.0, 0.91, respectively). A non-significant trend favored the intervention group on most subscales of the CBCL and the BSID-III (most notably motor development: d = 0.53). Irrespective of treatment allocation, at 5-year

follow-up, higher depression during pregnancy was associated with lower Verbal IQ and higher CBCL Anxiety/Depression and Internalizing scores. Higher anxiety during pregnancy was associated with lower IQ in all domains and with higher CBCL total problems, Anxiety/Depression, Withdrawn, Attention, Aggressive, Internalizing and Externalizing scores in children. Limitations: A small sample size and potential attrition bias.

**Conclusion:** There are few controlled studies of the effect of antenatal depression treatment on infant neuro-developmental outcomes. Whilst our follow-up study supports the current evidence of an association between antenatal depression and child outcomes, we found only a few statistically significant between-group differences to support our hypothesis regarding antenatal depression treatment and child cognitive and behavioral outcomes in the longer-term.

**Keywords:** Antenatal depression, CBT treatment, child development, child cognitive and behavioral outcomes

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### Exploring the effect of depression treatment during pregnancy on offspring's epigenetic profiles

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**Background & Aim:** Children prenatally exposed to maternal depression are more likely to develop psychopathology compared to unexposed children. Epigenetic regulation of fetal genes involved in neurodevelopment and mental health may explain this association but current evidence is largely based on animal and observational studies. In this follow-up of a pilot randomized control trial (RCT), epigenetic effects in offspring of mothers that received psychological therapy for antenatal depression was compared to treatment as usual.

**Methodology:** This is a follow-up study of the Beating the Blues before Birth program. 54 women were randomly allocated to cognitive behavioral therapy (CBT) or treatment as usual (TAU). A beneficial effect of CBT was found on symptoms of depression and anxiety. Here we report on DNA methylation findings in buccal swab DNA of the 3-7-year-old offspring (N=23), firstly at a genome-wide level at 809,993 CpG sites and secondly at 920 CpG specific sites spanning 16 a priori selected candidate genes, with special attention to the promoter region of the glucocorticoid receptor (NR3C1). We additionally compared DNA methylation between children from mothers with very high versus moderate levels of depression and anxiety prior to treatment.

**Results:** Explorative analysis at uncorrected significance level showed that children from the intervention group had overall lower DNA methylation compared to children from the control group (mean delta-beta value = -0.037). Most promoter-associated NR3C1 probes were less methylated in children from the intervention group (23 out of 34 probes, 68%). DNA in children from more severely depressed or anxious mothers

showed higher methylation at the majority of all probes (depression; mean delta-beta value = 0.02, anxiety; mean delta-beta value = 0.01).

**Conclusion:** In this explorative pilot follow-up study of an RCT, we found no robust evidence for an effect of treatment of depression during pregnancy on epigenome-wide methylation profiles in the offspring when corrected for multiple testing. However, we have demonstrated overall decreased DNA methylation in children from the intervention group at uncorrected significance level, and increased DNA methylation in children exposed to more severe depression or anxiety in utero, a trend that was also present in the promoter region of the NR3C1 receptor gene.

**Keywords:** Depression treatment, pregnancy, offspring epigenetic profile

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### Antenatal stress, child outcomes and interventions; implications for lower- and middle-income countries

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**Background & Aim:** There is considerable evidence that if a woman is stressed, anxious or depressed during pregnancy this increases the risk for a range of adverse psychological and physical consequences for her child, although many children are not affected. We now need to know more about what interventions may be effective both during pregnancy and postnatally, to counteract these outcomes. And we need to consider how problems may be different or exacerbated in lower- and middle-income countries (LAMIC) and what interventions may be appropriate where there is limited or no professional help available.

**Methodology:** This presentation will draw on a review of the literature and some unpublished research findings.

**Results:** There can be many reasons for elevated antenatal stress in LAMIC. There may be raised pregnancy specific anxiety because of high levels of maternal and infant death. There may be raised interpersonal violence, or communities at war. There may also be biological reasons for varied effects on the child. Genetic differences in diverse ethnic groups may make some children more vulnerable, or more resilient, to the effects of antenatal stress. There may be interactions with nutritional deficiencies, of iodine for example, or with infection. Breast feeding appears to improve some, but not all, of the emotional/behavioral/IQ outcomes affected by antenatal depression. Sensitive mothering can buffer some but not all of the effects of antenatal stress. Maternal stroking of the infant has been shown to reduce the effect of prenatal anxiety on internalizing and externalizing symptoms in the 3-year-old child. The potential benefit of music, either singing or listening, both antenatally and postnatally, is a promising area for future research. False beliefs, such as in the role of the spirits in causing depression, can impede being receptive to interventions in different cultural settings, and more needs to be understood about this.

**Conclusion:** Most research on these questions has been in predominantly Caucasian samples from high-income countries. It is now time to understand more about prenatal stress, child outcomes, the role of both social and biological differences, and appropriate interventions, in the rest of the world.

**Keywords:** Antenatal stress, child outcomes, interventions, lower- and middle-income countries

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### Postpartum PTSD and subjective birth experience – implications for mother and child

#### Women's subjective birth experience: Associations with new onset postpartum depression or PTSD

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**Background & Aim:** Obstetrical complications during labor enhance the likelihood for a woman to regard her birth as traumatic and to develop psychopathology (depression and/or PTSD). In this study we aim to understand how a woman's subjective birth experience may impact new onset of postpartum depression and/or PTSD in the presence or absence of objective medical birth trauma.

**Methodology:** 600 women receiving antenatal care at a university hospital were recruited early second trimester; women self-reported on depression and PTSD at 28 weeks and were excluded if they scored in clinical range. Healthy women at 28 weeks remained in the study and were followed through birth and postpartum (6 weeks, 3, 6, and 12 months postpartum). Women who scored in clinical range in any of the postpartum follow up visits were given a semi-structured interview asking for their subjective birth experience. Using grounded theory these interviews will be coded for themes.

**Results:** To date we have engaged 445 postpartum women, of those 289 already hit the 6 months postpartum time point, and only 2 women have provided data at 12 months. Longitudinal data collection is on-going and by the time of the conference all women will have finished data collection. At present approximately 15-16% of women at each time point (6 weeks, 3 and 6 months postpartum) score above the screening cut off on depression (EPDS) or PTSD (PPQ), and are invited to the subjective birth experience interview. Data collection, transcription and narrative coding for thematic analysis are still underway, but will be finalized at time of conference.

**Conclusion:** Attention to the subjective birth experience is warranted as a potential risk factor for postpartum psychopathology, which in turn has known adverse impact on the mother and her child.

**Keywords:** Traumatic birth, Postpartum posttraumatic stress disorder, subjective birth experiences

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#### Traumatic birth – consequences and treatment: Experiences from the mother baby unit at Dresden University

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**Background & Aim:** About 20% of women experience childbirth as traumatic, and about 3% will go on to develop the full constellation of symptoms of postpartum posttraumatic stress disorder (PTSD). The main PTSD symptoms such as intrusions and avoidance of the trauma origin (=the infant) often result in severe bonding difficulties with high psychological burden for mother and child. Urgent treatment is warranted in these cases. The Mother Baby Day Unit in Dresden offers such interaction focused psychotherapy for postpartum disorders.

**Methodology:** We present data from n=157 mothers who were treated in our unit since 2013 for postpartum disorders (mainly depression, anxiety disorders, personality disorders). Patients' mental health status and treatment effects are routinely examined using diagnostic interviews, a set of anamnestic questions, and standard questionnaires (e.g., EPDS, BSI, PBQ) prior to and after treatment. Subjective birth experiences as well as clinical complications as sub-syndromal indicators for traumatization are assessed.

**Results:** 13.8% of the mothers presented with a current PTSD diagnosis, 1.6% reported a postpartum onset of their symptoms due to traumatic childbirth. Many more women (47.2%) had a negative subjective birth experience. Further, 56.8% of all mothers reported severe bonding difficulties towards the baby. Mothers with bonding difficulties showed not only significantly higher levels of symptoms of depression (EPDS: M=16.6±5.6 vs 14.4±6.2), anxiety (STAI: M=57.2±10.6 vs. 51.4±10.6), and general psychopathology (BSI-GSI: M=1.4±0.7 vs. 1.1±0.6) compared to women without bonding difficulties, but also a far more negative subjective birth experience (SIL: M=79.3±16.2 vs. 61.3±22.9). Subjective birth experience in turn, was the most powerful predictor for bonding difficulties. Data on single aspects of birth experience, and birth complications will be presented.

**Conclusion:** Postpartum PTSD as well as negative birth experiences need to be targeted in the context of postpartum treatment, preferably in a mother-child setting to improve distorted mother-infant bonding processes and prevent long term risks for the newborn.

**Keywords:** Traumatic birth, subjective birth experiences, mother-infant bonding, bonding difficulties

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#### Maternal sensitivity in mothers with negative birth experiences – Associations to postpartum depression and history of interpersonal trauma

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**Background & Aim:** In clinical practice of perinatal psychiatry many mothers with postpartum depression suffer from negative birth experiences and a history of interpersonal trauma. Also, often maternal sensitivity is impaired. However, little is known about the association between women's birth experience, postpartum depression and maternal sensitivity (Bell et al 2016, Garthus-Niegel et al. 2014). Therefore, we examine (a) whether a history of interpersonal trauma predicts negative birth experience and, (b) whether negative birth experience enhances the risk for postpartum depression and contributes to lower maternal sensitivity.

**Methodology:** Our data are part of a longitudinal study examining sensitivity and mental health in mothers with postpartum mood disorders. The clinical sample consists of 30 patients in a psychiatric mother-and-child day clinic and 30 mothers-child dyads of a healthy control group. Maternal sensitivity was assessed via a semi-structured video-based observation and rated using 5-point scales based inter alia on Ainsworth's definition of sensitivity. History of interpersonal trauma, birth experience and symptoms of depression were assessed using questionnaires (SIL, CTQ, EPDS, BDI-II). Additionally, diagnoses according to ICD-10 rated by a perinatal psychiatrist were available.

**Results:** Preliminary results indicate that mothers suffering from postpartum depression report significantly more negative birth experiences (SIL-Score t(32)=1.77, p<.05) and history of interpersonal trauma (CTQ-Score t(37)=3.76, p<.001). Further analyses will investigate a possible association of negative birth experiences with maternal sensitivity. Furthermore, it will be examined whether history of interpersonal trauma and negative birth experiences predict severity and duration of postpartum depression.

**Conclusion:** Our preliminary results underline the importance of women's childbirth experience. Focusing on maternal sensitivity, implications for adequate intervention in pregnant mothers with history of interpersonal trauma and mothers with postpartum depression will be discussed.

**Keywords:** Traumatic birth, postpartum depression, negative birth experiences, maternal sensitivity

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#### The impact of postpartum PTSD on breastfeeding: a longitudinal population-based study

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**Background & Aim:** Breastfeeding has significant health benefits for both the mother and her child. Still, in most western countries, breastfeeding rates are lower than what is recommended by the WHO. To date the focus has been on the role of postpartum depression, with very little research on the role of birth-related postpartum posttraumatic stress disorder (PTSD). This study examined the rates of (a) breastfeeding initiation, (b) exclusive breastfeeding during the first 6 months, as well as (c) continuation up to 12 and 24 months, but also to investigate to what extent maternal postpartum PTSD predicted those breastfeeding practices/rates.

**Methodology:** Data are based on the population-based Akershus Birth Cohort (ABC study). Information from the hospitals birth record as well as questionnaire data from 8 weeks and 2 years after birth were used (n=1,480).

**Results:** Although the vast majority of mothers initiated breastfeeding, considerably fewer adhered to the WHO breastfeeding guidelines regarding exclusive breastfeeding during the first 6 months or continued breastfeeding during the first 12 or 24 months postpartum. Even after adjustment for important confounding variables, maternal postpartum PTSD was significantly associated with not initiating breastfeeding (adjusted odds ratio (aOR) 5.98; 95% confidence interval (CI) 1.79-19.97). Also, postpartum PTSD was significantly related to not continuing breastfeeding up to 12 months, although this association did not hold after adjusting for confounding variables. Interestingly, the effect size of PTSD was greater than that for postpartum depression in the multivariate analyses.

**Conclusion:** One possible explanation for the results is that breastfeeding requires a physical proximity to the infant, which possibly triggers intrusive memories of the traumatic childbirth. Identifying women at risk of not initiating breastfeeding is crucial to prevent a negative impact on infant development and the development of the mother-infant bond. Early screening and treatment of women at risk of developing postpartum PTSD might be a way forward.

**Keywords:** Postpartum posttraumatic stress disorder, breastfeeding initiation, exclusive breastfeeding, breastfeeding continuation, Akershus Birth Cohort

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#### *Scaling up the Thinking Healthy program for maternal depression through peer delivery: Experience of two trials in India and Pakistan*

**The Thinking Healthy program for perinatal depression: The development and adaptation for peer delivery in India and Pakistan**

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**Background:** Perinatal depression is highly prevalent in South Asia. Although effective and culturally feasible interventions exist, a key bottleneck for scaled-up delivery is lack of trained human resource. The aim of this study was to adapt an evidence-based intervention so that local women from the community (peers) could be trained to deliver it, and to test the adapted intervention for feasibility in India and Pakistan.

**Methodology:** The study was conducted in Rawalpindi, Pakistan and Goa, India. To inform the adaptation process, qualitative data was collected through 7 focus groups (four in Pakistan and three in India) and 61 in-depth interviews (India only). Following adaptation, the intervention was delivered to depressed mothers (20 in Pakistan and 24 in India) for six months through 8 peers in Pakistan and nine in India. Post intervention data was collected from depressed mothers and peers through 41 in-depth interviews (29 in Pakistan and 12 in India) and eight focus groups (one in Pakistan and seven in India). Data was analyzed using Framework Analysis approach.

**Results:** Most mothers perceived the intervention to be acceptable, useful, and viewed the peers as effective delivery-agents. The simple format using vignettes, pictures and everyday terms to describe distress made the intervention easy to understand and deliver. The peers were able to use techniques for behavioral activation with relative ease. Both the mothers and peers found that shared life-experiences and personal characteristics greatly facilitated the intervention-delivery. A minority of mothers had concerns

about confidentiality and stigma related to their condition, and some peers felt the role was emotionally challenging.

**Conclusions:** The study demonstrates the feasibility of using peers to provide interventions for perinatal depression in two South Asian settings. Peers can be a potential resource to deliver evidence-based psychosocial interventions.

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#### **Evaluating the effectiveness of the Thinking Healthy program by peers in Goa, India and Rawalpindi, Pakistan: Two multi-site randomized controlled trials**

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**Background:** The Thinking Healthy Program, an evidence based psychological therapy for maternal depression, was adapted for delivery by peers (THPP) in India and Pakistan, and evaluated in two parallel randomized controlled trials, as part of the SHARE program funded by the NIMH. In the current presentation, we discuss the effectiveness of THPP on depression outcomes.

**Methodology:** In the two trials, we recruited pregnant women aged  $\geq 18$  years attending antenatal clinics with PHQ-9  $\geq 10$  and in the second or third trimesters in Goa, India and Rawalpindi, Pakistan. Participants were randomly assigned to either intervention (THPP) or enhanced usual care (EUC). Pakistan Trial: ClinicalTrials.gov Identifier: NCT02111915 (9 April 2014), India Trial: ClinicalTrials.gov Identifier: NCT02104232 (1 April 2014).

**Results:** An individual parallel arm RCT was conducted with mothers in India (N=280) while a cluster randomized controlled trial was conducted in Pakistan (N of clusters=40; N of participants=570). In both sites, treatment completion rates were high (India: 72%; Pakistan: 78%). We observed significant effects on symptom severity at 3 months post-natal end-point in India (PHQ-9=4.3 (SD=4.2) vs. 5.8 (SD=5.7), SMD=-0.34, p=0.01) and in Pakistan (PHQ-9=6.1 (SD=5.6) vs. 7.8 (SD=6.3), SMD=-1.96, p<0.001) and a non-significant trend for reduced symptom severity at 6 months in India (PHQ-9=3.5 (SD=4.5) vs. 4.5 (SD=5.1), SMD=-0.18, p=0.16) and in Pakistan (PHQ-9=6.0 (SD=5.9) vs. 6.8 (SD=6.2), SMD=-0.13, p=0.07). In both sites, both patient-reported activation and perceived support at 3-months mediated the effects of THPP on depression scores at 6-months.

**Conclusion:** Intervention effects were strongest at 3 months post-natal and waned by 6 months, possibly due to the front-loading of the intensity of the intervention, and by spontaneous remission of control participants. In summary, the peer delivered THPP showed moderate effects on maternal depression in the short-term in two distinct contexts in South Asia.

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#### **Examining the ‘why’ of the Thinking Healthy program by peers in Goa, India and Rawalpindi, Pakistan: Mediation and underlying processes**

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**Background.** Psychological treatments or ‘talk therapies’ have been found to be effective for perinatal depression in low- and middle-income countries (LMICs). This includes the Thinking Healthy Program (THP), which was adapted for peers and evaluated in two parallel randomized controlled trials in India and Pakistan. In the current presentation, we examine the ‘why’ by assessing potential mediators underlying the THPP’s effectiveness.

**Methodology:** In the two trials, participants included pregnant women aged  $\geq 18$  years, attending antenatal clinics, a PHQ-9  $\geq 10$  and in the second or third trimesters from Goa, India and Rawalpindi, Pakistan. Participants were randomly assigned to either intervention (THPP) or enhanced usual care (EUC).

Using the Monte Carlo Method for Assessing Mediation (MCMAM), we examined whether three variables selected a priori—perceived social support, patient-reported activation levels and mother-child interaction at 3-months mediated the effects of THPP on 6-month symptom (PHQ-9) severity scores.

**Results:** In both sites, both patient-reported activation and perceived support at 3-months mediated the effects of THPP on depression scores at 6-months. Mother-child interaction scores was not a significant predictor or mediator in either site.

**Discussion:** As hypothesized in the intervention theory, activation and support were mediators. Despite differences in context and delivery, we found similar results related to effects and mediators across the two sites, indicating external validity of our findings and potential generalizability to other contexts.

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### *Differences in the behavior of offspring born to women in different cultural contexts and with different antenatal stressors*

#### **Neurobehavioral and cognitive development in infants born to mothers with eating disorders**

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**Background & Aim:** Maternal eating disorders (ED) are associated with an increased risk of adverse obstetric and childhood developmental outcomes. However, very little is known about neurobiological development among newborns and infants of mothers with ED. This study aims to investigate neurobehavioral regulation and cognitive development in newborns and infants of mothers with ED.

**Methodology:** Women with an active and past ED and healthy controls were recruited to a prospective longitudinal study during their first trimester or second trimester of pregnancy. Newborns and infants of mothers with eating disorders were compared with newborns and infants of healthy controls on (a) neurobehavioral regulation using the Brazelton Neonatal Behavioral Assessment Scale at 8 days postpartum (active ED, n = 15; past ED, n = 20; healthy controls, n = 28); and (b) cognitive development using the Bayley Scales of Infant and Toddler Development at 1-year postpartum (active ED, n = 18; past ED, n = 19; healthy controls, n = 28).

**Results:** Newborns of mothers with an active ED had less autonomic stability when compared with newborns of healthy controls [B = -0.34 (-1.81, -0.26)]. Infants of mothers with a past ED had poorer language [B = -0.33 (-13.6, -1.9)] and motor development [B = -0.32 (-18.4, -1.3)] compared with healthy controls.

**Conclusion:** Children of mothers with ED display neurobehavioral dysregulation early after birth and poorer language and motor development at 1 year. These characteristics suggest evidence of early neurobiological markers in children at risk. Differential outcomes in children of women with active versus past ED suggest that active symptomatology during pregnancy might have an effect on physiological reactivity while cognitive characteristics might be more stable markers of risk for ED.

**Keywords:** Language and motor development at 1 year, maternal eating disorders, Neonatal Behavioral Assessment Scale

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### **Neonatal Behavioral Assessment Scale: One of many essential building blocks used in the BRIGHT project in The Gambia**

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**Background & Aim:** Human brain and nervous system development during the first 1000 days is critical, risk of compromised development during this time can have a deep impact on physical growth and cognitive function into adulthood. Recent research has shown that under-nutrition in infancy is linked to lifelong effects on adult health, however we still have a poor understanding of how nutrition effects brain development during early life. Our ambitious objective is to chart brain development across different populations during this critical period including the first infant functional neuroimaging study in Africa.

**Methodology:** The Brain Imaging for Global Health (BRIGHT) project follows 200 Gambian and 50 Cambridge infants from before birth to twenty-four months to assess developmental influences, and is the first longitudinal study using fNIRS brain imaging in Africa. A major component of this project has been the training in, and adaptation of, measures with local staff in our rural setting in The Gambia. Central to the first home visit at 7 to 14 days of life is the Neonatal Behavioral Assessment Scale (NBAS).

**Results:** The NBAS is designed for use within any cultural context. Caregivers and elders in this Gambian sample largely approved of the NBAS, although there was some indication that the research context may have played a role in their appraisal. Multilevel data analysis of the NBAS data will be presented in relation to the other measures within BRIGHT.

**Conclusion:** A strong theme was the need for open communication with caregivers observing the NBAS, in order to maintain respect for individual and shared cultural beliefs about infant handling.

**Keywords:** Neonatal Behavioral Assessment Scale, The Brain Imaging for Global Health (BRIGHT), The Gambia

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### **Maternal prenatal cortisol predicts infant negative emotionality in a sex-dependent manner**

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**Background & Aim:** Prenatal stress influences fetal developmental trajectories, which may implicate glucocorticoid mechanisms. There is also emerging evidence that effects of prenatal stress on offspring development are sex-dependent. However, little is known about the prospective relationship between maternal prenatal cortisol levels and infant behavior, and whether it may be different in male and female infants. We sought to address this question using data from a prospective longitudinal cohort, stratified by risk.

**Methodology:** The Wirral Child Health and Development Study (WCHADS) cohort (n = 1233) included a stratified random sub-sample (n = 216) who provided maternal saliva samples, assayed for cortisol, at home over two days at 32 weeks of pregnancy (on waking, 30-min post-waking and during the evening). A trained assessor conducted the Neonatal Behavioral Assessment Scale (NBAS) with each infant at five weeks of age and a measure of infant negative emotionality was derived from this. Full ethical approval for the study was gained from Cheshire and Wirral Local NHS Research Ethics Committee.

**Results:** General population estimates of associations among measures were obtained using inverse probability weights. Maternal prenatal cortisol sampled on waking predicted infant negative emotionality in a sex-dependent manner (interaction term, p = 0.005); female infants exposed to high levels of prenatal cortisol were more negative (p = 0.042), whereas male infants were less negative (p = 0.045). There was no effect of the 30-min post-waking measure or evening cortisol.

**Conclusion:** Our findings add to an emerging body of work that has highlighted sex differences in fetal programming, whereby females become more reactive following prenatal stress, and males less reactive. A more complete understanding of sex-specific developmental trajectories in the context of prenatal stress is essential for the development of targeted prevention strategies.

**Keywords:** Fetal programming, Neonatal Behavioral Assessment Scale, prenatal stress, sex differences

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**Negative emotionality in the NBAS and Oppositional Defiant Disorder (ODD) symptoms at age 7 years: Findings from the Wirral Child Health and Development Study (WCHADS)**

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**Background & Aim:** The irritability scale of the NBAS provides a measure of negative emotionality to challenges similar to later temperament assessments. Based on previous findings from WCHADS we hypothesized that elevated negative emotionality is a risk for later behavior problems either as a main effect or in interaction with later parenting and that the effect varies by sex of child.

**Methodology:** Participants came from the Wirral Child Health and Development Study in which a general population sample of 1233 was recruited at 20 weeks pregnancy and from whom a subsample of 316 stratified by psychosocial risk was drawn at 32 weeks pregnancy for more intensive study. Negative emotionality in the NBAS was assessed at 5 weeks on 282 of these subsamples, and at age 7 years parent and teacher ratings of oppositional defiant disorder (ODD) symptoms were obtained for 229 participants. Maternal criticism was assessed from the Five-Minute Speech Sample at 14 months, and maternal responsiveness in a play assessment at 3.5 years.

**Results:** In bivariate analyses there was a modest association between negative emotionality and ODD symptoms ( $r = .18, p = .007$ ). Maternal criticism predicted higher ODD symptoms ( $r = .29, p < .001$ ) and maternal responsiveness in play was associated with lower ODD symptoms ( $r = -.20, p = .001$ ). In a multiple linear regression model that explained 15% of the variance, emotional reactivity ( $r = .15, p = .029$ ), maternal criticism ( $r = .27, p < .001$ ), and responsiveness ( $r = -.22, p = .002$ ) each made independent contributions. The effect of NBAS emotional reactivity was not modified by parenting experiences, and did not vary by sex of child.

**Conclusion:** There was a modest enduring contribution from emotional reactivity in the NBAS to ODD symptoms which was independent of subsequent parenting experiences. Unlike many findings from temperament research with older infants there was no indication of interactive (diathesis stress, or differential susceptibility) effects, nor of sex differences. A key issue currently under investigation is whether NBAS emotionality has sex-dependent effects for some, but not other, outcomes.

**Keywords:** Oppositional Defiant Disorder (ODD), Negative emotionality, Neonatal Behavioral Assessment Scale, Wirral Child Health and Development Study

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**Issues in screening for perinatal mental health**

**To screen or not to screen? Challenges and considerations**

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**Background & Aim:** Clinical guidelines in the USA and Australia recommend screening for perinatal depression (American College of Obstetricians and Gynecologists, 2015; Australian Clinical Practice

Guideline 2017) and the need to identify other mental disorders such as anxiety and a history of severe mental disorders was highlighted in recent UK guidelines (NICE, 2015). Despite this, the UK National Screening Committee argue against population screening, stating that perinatal mental health screening does not meet their criteria for a screening program. In clinical practice internationally a number of mental health assessment tools are used, with varying evidence for their effectiveness. This presentation therefore outlines challenges and considerations in perinatal mental health screening or assessment.

**Methodology:** This presentation is based on a 1-day workshop in February 2018 in Oxford, UK, funded by the Society for Reproductive and Infant Psychology. The aim of the workshop was to discuss conceptual and methodological issues in perinatal mental health screening/assessment; and consider whether screening for perinatal mental health problems is desirable based on current evidence.

**Results:** Discussions at the workshop outlined a number of key challenges, such as how we conceptualize and define screening; what we mean by perinatal mental health; varying evidence for the effectiveness of population screening and diversity of consensus; identifying the best methods of assessment; and barriers to effective assessment and how assessment relates to treatment.

**Conclusion:** These challenges have a number of implications for research and clinical practice internationally. As there is no international consensus on the benefits of screening for perinatal mental health, it is important to take time to reflect on how these issues could inform future development and practice in perinatal mental health screening and assessment.

**Keywords:** screen, assessment, conceptual, measurement

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**Identifying postnatal depression: Comparison of self-reported depression using a single item with Edinburgh Postnatal Depression Scale scores**

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**Background & Aim:** Postnatal depression is a commonly used term that is open to misinterpretation. The estimated prevalence of postnatal depression varies significantly depending on cultural differences, context, and variations in definitions and study methodologies. In particular, women experiencing depression may conceptualize and experience the condition in different ways, and there is little consensus on a 'gold standard' tool to identify postnatal depression. This study sought to use data from the 2014 National Maternity Survey to examine the association between a simple question asking women whether they self-identify as having depression and women's scores on the Edinburgh Postnatal Depression Scale (EPDS) – one of the most commonly used tools globally to identify symptoms of postnatal depression.

**Methodology:** The 2014 National Maternity Survey included a random sample of 10,000 women who gave birth in England over a two-week period. The survey includes questions about clinical events and care during pregnancy, labor and birth and the postnatal period as well as self-reported physical and mental health outcomes. The extent of agreement between the self-report question and EPDS scores were explored using McNemar's test and Cohen's kappa. Logistic regression was used to identify and compare the socioeconomic and clinical determinants of self-identified depression and high EPDS scores.

**Results:** Complete results were available for 4,178 women. At 3 months postpartum, 6.5% of women self-reported as having depression and 9.3% scored  $\geq 13$  on the EPDS. McNemar's test suggested a significant difference between the self-report measure and EPDS scores ( $p < 0.01$ ). Cohen's kappa was 0.34, suggesting only 'fair' agreement between the two measures. In the multivariable model, self-reported depression was significantly associated with age, minority ethnic background, self-reported

depression in pregnancy, self-reported anxiety in pregnancy, chronic illness and women's initial reaction to the pregnancy. Factors associated with high EPDS scores were employment, partnership status, country of birth, reaction to the pregnancy, self-reported depression in pregnancy, self-reported anxiety in pregnancy and any other psychological problem postpartum.

**Conclusion:** Women who self-identified as having depression using a single question differed from those who scored highly on the EPDS. Further work is required to explore potential explanations for this.

**Keywords:** postpartum depression, postnatal depression, assessment, measurement, screening

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#### Assessing perinatal depression in refugee and labor migrant women on the Thai-Myanmar border

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**Background & Aim:** Perinatal depression is a significant contributor to maternal morbidity and mortality worldwide. Migrant women may be particularly prone to developing perinatal depression as a result of multiple stressors associated with displacement. Identification of perinatal depression among migrant women—particularly those living in low- and middle-income regions—remains challenging due to the lack of locally-validated and culturally appropriate screening tools. Despite the vast majority of global migration flows occurring within low- and middle-income countries, evidence from these regions is severely lacking. This research addresses this imbalance by validating two screening tools for perinatal depression in the resource-poor setting of the Thai-Myanmar border.

**Methodology:** Participants were recruited from three antenatal clinics serving migrant and refugee communities within Tak Province on the Thai-Myanmar border. The first study assessed the validity and acceptability of the Edinburgh Postnatal Depression Scale (EPDS) while the second study assessed the validity and acceptability of the Refugee Health Screener (RHS). Each instrument was tested in Karen and Burmese languages. The Structured Clinical Interview for the Diagnosis of DSM-IV Disorders (SCID) was used as the 'gold standard' comparator. Validity of each instrument was determined by calculating sensitivity, specificity and likelihood ratios at each cut-off. Reliability was determined using Cronbach's alpha.

**Results:** Complete results were obtained for 675 (544 Karen-speaking and 135 Burmese-speaking) women for the EPDS study and 510 (275 Karen-speaking and 235 Burmese-speaking) women for the RHS study. Both instruments displayed reasonable psychometric properties including high sensitivity and specificity relative to the gold standard diagnostic interview, high accuracy and reasonable internal consistency. However, both instruments were limited by a number of important shortcomings. The Likert-type response categories were problematic in this low-literacy population, and participants and local staff administering the instruments perceived the questions as unclear and difficult to answer. In comparison, the SCID was easier to administer and elicited more information in the same amount of time.

**Conclusion:** Findings led to the SCID being recommended as the tool of choice for detecting perinatal depression in this setting. Further research is required to identify an alternative, culturally appropriate and valid screening instrument.

**Keywords:** perinatal, peripartum, depression, assessment, screening, measurement

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#### The effectiveness of the two-item Generalized Anxiety Disorder Scale (GAD-2) in identifying anxiety disorders in early pregnancy

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**Background & Aim:** The Generalized Anxiety Disorder Scale (GAD-2) questions has been proposed for use in pregnancy UK National Institute for Health and Care Excellence (NICE) and is currently started to be implemented in maternity services across UK. However, its diagnostic accuracy for antenatal anxiety disorders is not known. We aimed to estimate the population prevalence of anxiety disorders in a representative maternity sample from south London and investigate the diagnostic accuracy of the GAD-2 for Generalized Anxiety Disorder (GAD) and any anxiety disorder.

**Methodology:** Cross-sectional survey of 545 women interviewed after their first antenatal appointment, recruited using stratified sampling. Measures included the Structured Clinical Interview for DSM-IV (SCID) and the GAD-2 questions using a cut-off score of  $\geq 3$  (conventional scoring) or  $\geq 1$  indicative of a YES response which is used more commonly in clinical practice. Sampling weights were used in analysis to adjust for stratified sampling.

**Results:** Population prevalence of anxiety disorders was 17% including 5% for Generalized Anxiety Disorder, 4% social phobia, and 2% for obsessive-compulsive disorder. Weighted sensitivity of GAD-2 for GAD (cut-off of  $\geq 3$ ) was 69%, specificity 91%. Women were particularly likely to decline the PTSD module. Further analyses will also be presented.

**Conclusion:** Anxiety disorders are common but the GAD-2 generates many false positives. Using the GAD-2 in early pregnancy may therefore be unhelpful in maternity services. PTSD may be particularly difficult to identify due to barriers to disclosure of trauma.

**Keywords:** pregnancy, anxiety, assessment, screening, measurement

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#### A qualitative study of women's' experiences of being asked about mental health problems at antenatal booking appointments

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**Background & Aim:** Around half of all antenatal mental disorders go unrecognized by health care professionals, including depression which represents the most common perinatal mental health problem. Therefore, routine case finding for antenatal depression has been advocated in many countries including the United States, Australia and the United Kingdom. In the UK, the National Institute for Health and Care Excellence recommends that two brief depression screening questions are asked at antenatal booking appointments. Whilst it is generally accepted as good practice that healthcare professionals identify depression in pregnancy, it is not clear whether these case finding questions are the optimal method. Nor is it clear how pregnant women feel about enquiry into depression at antenatal bookings. This study, therefore, sought to explore women's experience of being asked about depression and other mental health difficulties at antenatal booking.

**Methodology:** Qualitative analysis of semi-structured interviews regarding women's experience of mental health enquiry at antenatal booking. Interviews with 52 women were audio-recorded, transcribed verbatim, and analyzed using thematic and framework approaches.

**Results:** In a culturally diverse sample, no women directly objected to mental health enquiry at booking but their satisfaction with the questioning varied. Although many women found it agreeable, some women encountered difficulty with the questions. These women had a past or current mental disorder and/or a history of abuse. They reported dissatisfaction due to the emotional responses triggered by the questions and the way in which their disclosures were handled by midwives. Women wanted to receive responses from midwives which were normalizing, well-informed about mental health and which provided sufficient time for them to discuss their feelings.

**Conclusion:** Midwives should pursue a general discussion around mental health and be aware of the stigma surrounding these issues for women who may have experience of mental health problems or of abuse. Ideally, training should also be provided to educate midwives as to the appropriate referral and support services, and booking appointments should be appropriately timed to facilitate these discussions.

**Keywords:** pregnancy, mental health, anxiety, depression, assessment, screening, measurement

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**Universal approaches to prevention of perinatal mental health problems  
Gender-informed psycho-educational program to promote respectful relationships and prevent common mental disorders among primiparous women: Long-term follow-up of participants in a community-based cluster-randomized controlled trial**

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**Background and aim:** What Were We Thinking (WWWT) is a gender-informed, psycho-educational program to promote respectful relationships between intimate partners, and skilled management of unsettled infant behaviors, and thereby reduce postpartum common mental disorders. It has three components: a one-day structured small group seminar for couples and their babies, routine care from a WWWT-Trained maternal and child health nurse and a set of print materials. Primary and secondary outcomes were established at trial endline six-months postpartum. The aim of this study was to assess long-term outcomes of a cluster RCT of WWWT implemented in primary care.

**Method:** Data was collected in individual computer-assisted telephone interviews, which included the PHQ-9 (depressive symptoms) and GAD-7 (anxiety symptoms), eighteen months postpartum. The impacts of baseline characteristics and trial arm on the changes in PHQ-9 and GAD-7 scores from 6 weeks to 18 months postpartum were assessed using Conditional Latent Growth Curve Models.

**Results:** Overall, 314/400 (78.5%) women contributed data at baseline, trial endline and follow-up assessments. After adjusting for individual characteristics, psychiatric history, quality of intimate partner relationship and unsettled infant behaviors, there was significantly greater improvement in GAD-7 scores (Regression Coefficient -0.55; 95%CI, -0.91 to -0.21) and non-significant improvement (Regression Coefficient -0.27; 95%CI, -0.67 to 0.13) in PHQ-9 scores from baseline to follow-up among women in the intervention compared to women in the control arms. The proportion of women with GAD-7 scores  $\leq 4$  (asymptomatic) improved 24.1% (55.7% at baseline to 79.8% at follow-up,  $p=0.043$ ) among women in the intervention arm who received the full three-component intervention, which included the seminar, compared to 2.4% (from 77.1% to 79.5%,  $p=0.706$ ) among those who did not attend the seminar and received the partial intervention of usual care from the WWWT-trained nurse and the print materials.

**Conclusions:** The WWWT program has a significant sustained beneficial impact on postnatal generalized anxiety among primiparous women compared to the usual standard of care. The in-person seminar is the most influential component of the intervention. The postulated mechanisms of an approach to household tasks and caregiving that was more equitable and less bound by gender stereotypes and greater parenting efficacy appear to have led to lasting improvements in day-to-day family interactions.

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**Learning clubs to improve women's health and infant's health and development in rural Vietnam: Acceptability, feasibility and indicators of impact of a multicomponent intervention**

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**Background and aim:** There are eight major risks to optimal child development in resource-constrained settings including iron and iodine deficiencies, low birth weight, stunting, family violence, lack of early learning opportunities, insensitive caregiver-child interactions and the most recently recognized maternal mental disorders. Most interventions have addressed nutrition, some pairing it with cognitive stimulation, and impact has been limited. The aim was to establish acceptability, comprehensibility, feasibility and indicators of impact of a novel multi-component intervention to address all eight risks together in a pilot test.

**Methods:** The Learning Clubs intervention is a structured program that combines specific information, learning activities and social support in accessible facilitated community-based groups of women at the same life stage. It was pilot tested among women who were either pregnant or had given birth in the prior twelve months in three communes. Outcomes were compared with three control communes in Ha Nam province. Data were collected in individual interviews with standardized measures and study-specific structured and open-ended questions.

**Results:** There were lower rates of clinically significant scores on the Vietnam-Validated Depression, Anxiety and Stress Scale (OR-2.96, 95%CI, -5.24 to -0.67); and prevalence of recent child illness (OR-1.25, 95%CI, -2.35 to -0.15) and higher rates of favorable home environments (mean HOME Inventory score difference =3.63, 95%CI, 0.24 to 7.01) among the intervention compared to the control group. Infants of mothers in the intervention group had a mean parent-completed Ages and Stages Questionnaire score of  $14.44 \pm 4.87$  and those of mothers in the control group  $12.29 \pm 6.83$  ( $p = 0.057$ ). One participant said "...The content is very practical. We live in a rural area so we don't have opportunities to learn officially, but only by my grandmother's and my mother's experience. Now with all the knowledge provided by the club I can take better care of my children." All stakeholders found the content salient and comprehensible. At project closure 918 people: 613 women and 305 partners and grandparents had attended a Learning Clubs session.

**Conclusion:** There was promising evidence of improvements in intermediate early childhood development indicators, including maternal mental health from this low-cost, community-based innovative approach.

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**Shifting policy and practice to scale up prevention: Barriers and opportunities identified in a translational evaluation of WWWT**

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**Background & aim:** A comprehensive model of mental health care includes prevention, early intervention and treatment. Primary care health services occupy positions at each point of the model and have an important role in mental health promotion and prevention of mental health problems. In the state of Victoria, Australia, primary care Maternal and Child Health (MCH) nurses provide universal access to health and wellbeing checks for infants 0-5 years of age and their parents. Recent Australian policy places MCH services at the frontline of responses to improve women's postnatal mental health, but there are few evidence-based prevention-strategies available to meet their needs.

What Were We Thinking (WWWT) is an evidence-based preventive mental health program. Implementing WWWT into standard postpartum care requires changes among parents, health care providers, health services and health systems. The aim was to establish the practitioner, organizational and health system changes necessary for WWWT scaling up.

**Methodology:** Following the UK Medical Research Council (MRC) Guidance for evaluating complex interventions, we conducted a translational formative evaluation using mixed methods, including collection and analysis of government documents and the academic literature, semi-structured interviews, an online survey and group discussions and interviews with parents, clinicians, health service managers and government policy makers. Interview and focus group data were analyzed thematically, and descriptive statistics were computed for survey results.

**Results:** The findings documented current clinical practice, barriers to change, staff training needs, necessary service modifications to standardize advice to parents and include fathers, staff learning needs to inform the WWWT Training Program, the key priorities and drivers of government health policy, and informed a model of costs and expected health and social outcomes for an economic analysis of WWWT.

**Conclusion:** Implementation of WWWT into routine postnatal care requires adjustments to clinical practice and has economic implications for the health system, including staff training and changed service provision. The results will be essential in considerations about scaling up WWWT to make this innovative mental health promotion program available to all Australian new parents and support positive outcomes for families.

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### Creating a standardized curriculum in reproductive mental health

Lauren M Osborne

#### Objectives of the workshop:

<sup>1</sup>Understand the current state of reproductive mental health education for physicians in training

<sup>2</sup>Understand the gaps that exist in reproductive mental health training in psychiatry residencies

<sup>3</sup>Understand the goals and content of the National Curriculum in Reproductive Psychiatry, a U.S.-based effort toward a standardized curriculum 4) Provide feedback for and add an international voice to this pilot curriculum

**Teaching methods:** This workshop will introduce the audience to the work of the National Task Force on Women's Reproductive Mental Health, which, in collaboration with Marcé of North America, has been working for the past 5 years to collect information about the current state of residency education in reproductive psychiatry, and to propose new training standards. This workshop will summarize the work and introduce the audience to the National Curriculum in Reproductive Psychiatry, an interactive curriculum with both web-based and classroom components designed to train physicians and other mental health providers. Activities will include: 1) A tour of the website and interactive learning experiences, 2) Real-time feedback from workshop attendees regarding their opinions of the website and curriculum elements, using an advanced polling software, 3) Small-group activities, in which workshop attendees will engage in classroom modules of the curriculum and provide feedback on the process and content, and 4) Discussion, which will include feedback from attendees, with a particular focus on how to incorporate international models of care.

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### Mental health and mother-infant interactions

#### The impact of personality dysfunction in pregnancy on mother-infant interactions and bonding at 3 months postpartum

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**Background and aim:** Research has shown that depression in pregnancy can be associated with problems in mother-infant interaction. Such difficulties may lead to insecure mother-child attachment and adverse emotional and behavioral outcomes in children. However, there is limited literature on other maternal mental disorders such as personality dysfunction. The current study investigates the impact of maternal personality dysfunction on bonding and mother-infant interactions at 3 months postnatal.

**Methodology:** The WENDY cohort study recruited a representative sample (n=545) of women soon after attending their antenatal booking appointment at a South London maternity unit. Maternal personality dysfunction was measured using the Standardized Assessment of Personality – Abbreviated Scale (SAPAS) where a cut-off score of  $\geq 3$  is indicative of high symptoms of personality dysfunction and less than 3 as low personality dysfunction. Women were followed-up at 3 months postnatal (n=474, 87% follow-up rate) where bonding was measured using the self-report postpartum bonding questionnaire. Mother-infant interaction data was collected on a sub-sample of mothers and baby's where mothers agreed to a 3-minute video recording. Mother-infant interaction data was coded using the CARE-Index and the coder was blind to the mother's mental health status.

**Results:** Mother with higher personality dysfunction were significantly less sensitive compared mothers that scored low on personality dysfunction, even after controlling for important factors such as maternal age and education. There were no significant differences in mother-infant interaction between mothers with or without anxiety.

**Conclusion:** Interventions that promote positive mother-infant interactions could be implemented during pregnancy to support mothers with personality dysfunction. However, currently there is limited support for women with personality dysfunction and care-pathways would need to be put in place to support these women during pregnancy and early postnatal period.

**Key words:** Personality dysfunction, mother-infant interactions, sensitivity

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### The joint contributions of maternal depression and infant negative emotionality to maternal sensitivity to infant distress

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**Background and aim:** Maternal depression and lower parenting sensitivity are often associated during infancy. Yet, little is known about (i) the

role of infant emotionality and its interplay with maternal depression in the prediction of maternal sensitivity and (ii) whether these emotion-laden processes may be particularly relevant to maternal sensitivity to distress. The aim of this study was to examine these relationships within a prospective longitudinal study of first-time mothers and their infants.

**Methodology:** We studied 260 first time mothers and their infants, drawn from a UK general population prospective study of families recruited in pregnancy, known as the Wirral Child Health and Development Study. Full ethical approval was gained from Cheshire and Wirral Local NHS Research Ethics Committee.

Infant negative emotionality was assessed at 5 weeks of age using the Neonatal Behavioral Assessment (NBAS), and mothers were interviewed for DSM Major Depressive episodes over the first 29 weeks. Maternal sensitivity was observed at 29 weeks in a 15-minute standardized play procedure.

**Results:** Controlling for a range of potential confounders, neither maternal depression nor infant negative emotionality independently predicted maternal sensitivity, but the interaction between them was statistically significant ( $p = .01$ ). Increasing infant negative emotionality predicted decreasing maternal sensitivity to distress, only in mothers who experienced an episode of Major Depressive Disorder during the postnatal period. This effect was not seen for sensitivity to non-distress, although the test of the difference between the effects was not statistically significant ( $p = .07$ ).

**Conclusions:** These findings suggest that maternal depression during the first months of infant life may create an affective and cognitive vulnerability to the effects of frequent intense infant negative emotions. The findings have implications for our understanding of psychological processes underlying parental sensitivity, and hence for early interventions.

**Key words:** Maternal sensitivity, depression, infant negative emotionality \*\*\*

#### The impact of anxiety disorders in pregnancy on mother-infant interactions and bonding at 3 months postpartum

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**Background and aims:** There is limited literature on the association between maternal anxiety disorders during pregnancy and mother-infant interactions. The current study investigates the impact of anxiety disorders during pregnancy on bonding and mother-infant interactions at 3 months postnatal.

**Methodology:** We used data from the WENDY cohort study, which recruited a representative sample ( $n=545$ ) of women pregnant women and followed them up at 3 months postnatal. Antenatal anxiety disorder was measured using the Structured Clinical Interview DSM-IV-TR (SCID) during a research interview conducted soon after attending their antenatal booking appointment. At the 3 months postnatal ( $n=474$ , 87% follow-up rate) visit, bonding was measured using the self-report postpartum bonding questionnaire. Mother-infant interaction data was collected on a subsample of mothers and baby's where mothers agreed to a 3-minute video recording which was coded using the CARE-Index (coder was blind to the mother's mental health status).

**Results:** Mothers with antenatal anxiety disorder reported significantly lower bonding with their infants compared to mothers with no anxiety

disorder, but the association was no longer significant after adjusting for maternal age and education. There were no significant differences in mother-infant interaction or maternal sensitivity between mothers with or without anxiety.

**Conclusion:** Mothers with antenatal anxiety is not associated with impairments with mother-infant interactions. Implications will be discussed.

**Key words:** Anxiety, mother-infant interactions, CARE-Index, bonding \*\*\*

#### Mother-infant interactions in women with severe mental illness

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**Background and aim:** Maternal severe mental illness (SMI) disrupts mother-infant interaction in the immediate postpartum and is associated with less than optimal offspring development. In-patient video feedback intervention (MBUs) provide the opportunity of supporting mothers with SMI in developing their relationships with their infants in order to minimize this disruption. One way is through an individualized video feedback intervention, delivered as part of a multidisciplinary inpatient treatment package. The present study prospectively measured changes in mother-infant interaction following video feedback intervention, during admission to an MBU ( $N=62$ ).

**Method:** Three-minute videos of play sessions between mothers and their babies were made on admission and discharge from an MBU. Paired Crittenden CARE-Index scores of maternal sensitivity and unresponsiveness, and infant cooperativeness and passiveness, were collected at both time points.

**Results:** Crittenden CARE-Index scores showed similar improvements ( $n=62$ ; maternal sensitivity ( $z=-4.27$ ,  $p<.001$ ) and unresponsiveness ( $z=-2.34$ ,  $p=0.02$ ); infant cooperativeness ( $z=-3.77$ ,  $p<0.001$ )). The changes in maternal sensitivity and infant cooperativeness were positively correlated ( $r(s) = .69$ ,  $p < .001$ ). All diagnostic groupings (mothers with depression, anxiety, mania, schizophrenia) made similar improvements.

**Conclusion:** Positive outcomes were achieved for mothers and babies across all diagnostic groups. While the design of the study does not allow us to conclude unequivocally that the video feedback intervention has effects on the outcome for the mothers and babies independent of the whole inpatient therapeutic package, the results do show that the dyadic interaction of mothers with SMI and their infants improves following the focused treatment package in a specialized MBU.

**Key words:** severe mental illness, video feedback intervention, video feedback intervention \*\*\*

#### Through babies' eyes: Recording parent infant interaction in the next generation of the Avon Longitudinal Study of Parents and Children.

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**Background and aim:** To test the utility of first-person viewpoint cameras worn at home by mothers and infants to record behavior. This approach aims to reduce problems associated with participant reactivity, which represent a fundamental bias in observational research.

**Methodology:** In an initial validation study with 14 mothers and infants, we compared footage recording the same play interactions from a

traditional third-person point of view (3rd PC) and using small cameras worn on headbands (first-person cameras [1st PCs]) to record first-person points of view of mother and infant simultaneously. In addition, we left the dyads alone with the 1st PCs for several days to record natural mother-infant behavior at home.

**Results:** Codings of maternal behavior from footage of the same scenario captured from 1st PCs and 3rd PCs showed high concordance ( $\kappa > 0.8$ ). Footage captured by the 1st PCs also showed strong inter-rater reliability ( $\kappa = 0.9$ ). Data from 1st PCs during sessions recorded alone at home captured more 'negative' maternal behaviors per min than observations using 1st PCs whilst a researcher was present (mean difference = 0.90 (95% CI, 0.5 to 1.2,  $p < 0.001$  representing 1.5 SDs).

**Conclusion:** 1st PCs offer many practical advantages and can reliably record maternal and infant behavior. This approach may also record a higher frequency of less socially desirable maternal behaviors. It is unclear whether this difference is due to lack of need of the presence of researcher or the increased duration of recordings. This finding is potentially important for research questions aiming to capture more ecologically valid behaviors and reduce demand characteristics.

Funded by an ERC starter grant we are now including the cameras in an estimated 500 mothers and infants in the next generation of a large cohort study (Avon Longitudinal Study Parents and Children, ALSPAC-G2) where we can link the coding from the footage to pre-conception and perinatal mental health measures. We will present preliminary ALSPAC findings, which further demonstrate that this method captures more natural behaviors including negative emotion, but also 'baby talk' and imitation, which mothers may feel more comfortable displaying without a researcher present.

**Keywords:** mother-infant interactions, play interactions

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## GAMMH Symposia

### Addressing psychosocial vulnerabilities through antenatal care – Depression, suicidal ideation and behavior: A study of urban Sri Lankan women

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**Background and aim:** Antenatal care (ANC) provides a unique opportunity to identify and support women experiencing common perinatal mental disorders (CPMDs) and—although rarer—self-harm and suicide. An absence of data persists for CPMDs and suicidal ideation and/or behaviors (SIB) in perinatal women, particularly from low- and middle-income countries (LMIC) and from the antenatal period. This research capitalized on the strength of the antenatal platform in Sri Lanka to identify the prevalence of antenatal depressive symptomatology, lifetime- and current pregnancy SIB and their risk factors in urban antenatal women.

**Methods:** One thousand women attending ANC in Gampaha District were screened between February and September 2016. This is the first study to adapt the Columbia-Suicide Severity Rating Scale for a perinatal population, combined with the Edinburgh Postnatal Depression Scale, and a comprehensive life circumstances questionnaire which captured women's demographic, social and health characteristics and exposure to intimate partner violence (IPV). Univariate, bivariate and logistic regression analyses examined prevalence and risk factors associated with depressive symptomatology and SIB.

**Results:** Past-week prevalence of antenatal depressive symptomatology was high; nearly 30% of women reported symptoms of mild to moderate depression. One in four (25.7%) women reported a lifetime history of SIB, while SIB during the current pregnancy was reported at 7.4%. Exposure to IPV and lifetime SIB emerged as the strongest predictors of both depressive and current pregnancy SIB outcomes ( $p < 0.05$ ).

**Conclusions:** This study evidences the high prevalence of multiple psychosocial vulnerabilities in pregnant women in Sri Lanka and underscores the need for their improved comprehensive assessment. Given the high rates of use of ANC in LMIC in general and Sri Lanka in particular, and its effectiveness in delivering integrated services, it is a potentially powerful mechanism through which to screen for CPMDs, SIB and IPV, supporting early identification and intervention for vulnerable women.

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### Immune mechanisms of perinatal distress

#### How much maternal stress is needed to affect fetal outcomes in males versus females?

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**Background & Aim:** Maternal prenatal stress moderates the in-utero environment and contributes to a range of pregnancy complications and compromised long-term health effects for the future child, as well as the mother. And yet, information on which specific type of prenatal stress matters—and for whom in the mother-infant dyad—is lacking.

**Methodology:** We used a data-driven approach to probe the concept of maternal prenatal stress based on psychological and physical health factors to help determine which features of the dyad's biopsychosocial context most strongly correlate with risk markers for maternal and/or fetal well-being. We utilized a latent profile analysis (LPA) to identify distinct maternal stress profiles. We recruited 187 pregnant women with singleton pregnancies and collected data through questionnaires, ambulatory diaries and blood pressure assessment, fetal neurobehavioral monitoring, and serum and saliva samples from 14 weeks gestation through delivery.

**Results:** LPA identified three groups – 66.8% of the sample were healthy (HG); 17.1% were more psychologically stressed (PSG), with greater stress, depression, anxiety, and negative pregnancy experiences; and 16% had greater poor physical health indicators (Physically Stressed Group, PhysSG) with, for example, higher ambulatory blood pressure and increased caloric intake. Relative to the HG, the PhysSG had decreased fetal heart rate (FHR)-movement coupling, an index of central nervous system development ( $p < .05$ ), and the PSG had greater FHR reactivity during maternal challenge ( $p < .05$ ), consistent with our prior work on fetuses of women with psychiatric illness. The male-female infant sex ratio was significantly lower than population norms in both distressed groups ( $p < .04$ ) and higher than typical in the HG ( $p < .023$ ), similar to results from epidemiological studies showing that male births are less common when there is acute and chronic maternal adversity. Relative to the HG, infants in the PSG had a prolonged length of hospital stay by nearly one day ( $p < .04$ ).

**Conclusion:** These findings reveal distinct maternal-infant stress profiles before birth with a significant male vulnerability and suggest specific targets for development of future stress intervention approaches benefiting the mother and her future baby.

**Keywords:** maternal stress, fetal sex, fetal heart rate, perinatal depression

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### Emerging research in the microbiota-gut-brain axis and perinatal mood and anxiety disorders

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**Background & Aim:** While gut microbial composition has been linked to depression and anxiety, and there is evidence the microbial

composition may change during pregnancy and the postpartum period, there is limited information on whether the microbiota-gut-brain axis is associated with Perinatal Mood and Anxiety Disorders (PMAD).

**Methodology:** Thirty women, recruited in the 1st or 2nd trimester, were administered the SCID to determine current and past psychiatric disorders. Women with bipolar or psychotic disorders were excluded. Subjects were followed through the third trimester and 6-8 weeks postpartum and evaluated with self-assessments for anxious and depressive symptoms (GAD-7 and EPDS). Fecal samples were collected at each visit and analyzed by 16S sequencing.

**Results:** A linear mixed model with random intercepts for subject and fixed effects for time relative to week 37 of gestation, mother's age, history of major depression (MDD), history of anxiety, and history of both MDD and anxiety found a significant negative association between the Chao1 index of alpha-diversity (a measure of the diversity within each subject's composition) and history of anxiety ( $p = 0.01$ ). We estimate that subjects with history of anxiety have a Chao1 index that is 339 units lower than women without any history of anxiety. A significant negative association was also found using the Shannon Index for alpha-diversity. There was a trend towards lower alpha-diversity for those with history of MDD and those with history of both. There were no differences in beta-diversity (a measure of diversity across groups) over the visits nor patterns of beta-diversity based on factors such as co-morbid PTSD. Certain taxa were associated positively or negatively with elevated GAD and EPDS scores. For example, the Phylum Proteobacteria was associated with higher GAD scores. None in the history of anxiety group were taking antidepressants although several in the both groups were.

**Conclusion:** History of anxiety appears to be an important factor in lower alpha diversity. Increased predominance of bacteria such as Proteobacteria, are thought to be more pro-inflammatory, in relation to elevated anxiety and may indicate a mechanism of increased inflammation.

**Keywords:** perinatal mood and anxiety; microbiome; inflammation  
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#### **Inflammatory markers across time in pregnancy and postpartum: Association with maternal mood**

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**Background & Aim:** The role of the immune system in the pathophysiology of depression has been the focus of recent studies; nevertheless, and despite pregnancy being associated with alterations in immune regulation, the role of the immune system in perinatal depression has not been extensively studied. Therefore, the aim of these studies was to assess inflammatory markers in (1) depressed pregnant women as well as those on SSRI medication, (2) pregnant women presenting later with postpartum depression (3) postpartum depressed women, in comparison their euthymic counterparts, and (4) pregnant vs. postpartum euthymic women.

**Methodology:** Using a multiplex proximity extension assay, 92 inflammatory markers were assessed in peripheral blood samples in 258 women during late pregnancy and in 178 women at two months postpartum.

**Results:** Women with antenatal depression or on SSRI treatment during pregnancy had lower levels in 23 inflammatory markers in comparison to healthy pregnant controls. Several of the top down-regulated markers, such as TRAIL, CSF-1, CX3CL1, VEGF-A, and IL-15R, have been associated with M2 macrophage function. There was no support for the use of a single inflammatory marker in late pregnancy for predicting risk of postpartum depression. However, the use of STAM-BP might be used in combination with other biological markers in the future. Five of the markers, TRANCE, HGF, IL-18, FGF-23 and CXCL1, were significantly elevated in women with depressive symptoms postpartum in comparison to healthy postpartum controls. Fifty-one inflammatory markers were significantly different between pregnancy and postpartum, out of which

42 decreased from pregnancy to postpartum, while the remaining 9 increased in the postpartum period. The three markers that decreased to most from pregnancy to postpartum were LIF-R, LAP2GFBeta1 and CCL28 while the three markers increasing the most were TRANCE, TWEAK and CCL11.

**Conclusion:** In summary, no marker in any of the studies investigating perinatal depression was distinct enough to be used as a single diagnostic tool. However, the immune system seems to have a central role in perinatal depression, and further research on differences in its necessary plasticity required during this period is warranted.

**Keywords:** inflammation, perinatal depression, immune system  
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#### **Immune dysregulation in pregnancy: Relationship with symptoms of depression and anxiety**

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**Background & Aim:** Recent evidence indicates complex associations between immune functioning and psychiatric illness, yet longitudinal studies that focus on the perinatal period are few.

**Methodology:** In two independent studies, we measured mood, anxiety, and peripheral cytokines (by multiplex) at 5 points in pregnancy and postpartum. The Mt. Sinai Cohort (MS, N=49, non-clinical population) used the Beck Depression Inventory (BDI) and State-Trait Anxiety Inventory (STAI). The Johns Hopkins Cohort (JH, N=62, all women with mood disorders) used Edinburgh Postnatal Depression Scale (EPDS). Within subject cytokine trajectories over time by depression and anxiety grouping were assessed using linear mixed effects models with random intercept and slope.

**Results:** In the MS Cohort, 46% of subjects were African-American and 50% Hispanic; 56% had at least a high school education; none met criteria for a psychiatric illness. For more depressed subjects, IL-6 ( $p < 0.001$ ), IL-15 ( $p = 0.047$ ), GCSF ( $p = 0.003$ ), and MIP1A ( $p < .001$ ) were significantly different across time, with IL-6 ( $p < 0.001$ ), IL-15 ( $p = 0.003$ ), and MIP1A ( $p < 0.001$ ) all higher at the third trimester visit. For more anxious subjects, GM-CSF significantly decreased across pregnancy ( $p = 0.016$ ) and MIP1A ( $p = 0.017$ ), IL-8 ( $p = 0.011$ ), and IL-6 ( $p < 0.001$ ) were all higher at the third trimester visit. In the JH Cohort, subjects were primarily Caucasian (71%) and well educated (92% with at least a high school education). Seventy-five percent met criteria for an episode of major depression during the study. No cytokines were significantly different across time, but IL-6, TNF $\alpha$ , and GM-CSF were all correlated with depressive symptoms at the third trimester.

**Conclusion:** We thus found increases in pro-inflammatory cytokines at the third trimester for more depressed subjects, both those who were relatively healthy and those very psychiatrically ill, and in both an advantaged and disadvantaged population. We are currently analyzing a replication cohort that includes mood-disordered women and healthy controls. Future directions include extending this work to include immune cell phenotype, and increasing our population of anxious women.

**Keywords:** cytokine, inflammation, perinatal depression, perinatal anxiety, immune system  
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#### **New initiatives in perinatal mental health in Japan**

##### **The Japan Association of Obstetrics and Gynecology Perinatal Mental Health Project**

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**Background & Aim:** Perinatal and maternal mortality rates are significantly lower in Japan than in other nations where records are available. Notable

achievements include the use of ‘root cause analysis’ to reduce the incidence of cerebral palsy by 10% since the introduction of the no-fault compensation system. In contrast, some geographical locations report high levels of maternal suicides, indicating serious gaps in the provision of mental health care for pregnant and postpartum women. Our response was the establishment of the Perinatal Mental Health Project in 2015.

**Methodology:** Since that date mental health screening has been provided for all pregnant and parturient women at their local obstetric facility and ongoing treatment for mental health problems has been delivered by multidisciplinary teams.

**Results:** The work is supported by annual Maternal and Child Mental Health Nationwide Forums. We performed it once a year and three times so far. The Maternal Mental Health Care Manual, a compendium of expert information, was published last year, and a workshop based on the manual was offered with support from Professor K Yoshida, achieving a 99% satisfaction rating from participants. Plans for the future include training leaders to expand the delivery of the workshop across the country and, this year, an advanced workshop will also be made available.

**Conclusion:** Goals for the future include further reductions in maternal mortality in addition to work on the prevention of child abuse and the promotion of the healthy growth and development of children in Japan.

**Keywords:** mental health care screening, Japan, professional training  
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### Comparison of the Edinburgh Postnatal Depression Scale and Whooley’s two questions in the screening of postpartum depression in Japan

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**Background & Aim:** Perinatal depression has a high incidence in the postpartum period and can lead to the abuse and neglect of the developing child by the unwell mother. The early detection of perinatal depression and early treatment of the condition is therefore a priority. Data sharing at all levels and across all agencies is essential to efficient and safe service delivery and to service development. All perinatal institutions in Japan are therefore required to carry out a mental health assessment on puerperal mothers and register the results on a secure local database.

**Methodology:** Together with the midwifery team we have carried out mental health screens on all postnatal mothers attending our hospital using the Edinburgh Postnatal Depression Scale (EPDS) and Whooley’s two questions.

**Results:** In this symposium we will present a comparison of the accuracy and efficiency of the two assessment tools.

**Conclusion:** We will also offer an account of the past two years of service development including training multidisciplinary staff to use the screening tools and training staff to plan and deliver care to those women in need of emotional and practical support.

**Keywords:** screening of postpartum depression, Edinburgh Postnatal Depression Scale, Whooley’s two questions, Japan  
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### Japanese women’s perinatal mental health: Perspectives from the National Cohort Study in Tokyo

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**Background & Aim:** We will present the perinatal mental health characteristics of Japanese women that were suggested by the results of the National Cohort Study in Tokyo.

**Methodology:** The cohort study was performed in Setagaya Ward, Tokyo, Japan from December 2012 and May 2013. The participants were pregnant women (<20 weeks of gestation) who had been followed up at any of the

obstetrics outpatient clinics in the Setagaya ward (14 obstetrics hospitals), and who had made an appointment to deliver at those clinics. The participants were asked to answer questionnaires at 6 time points: 20 weeks gestation (T1), a few days after delivery (T2), 2 weeks after delivery (T3), 1 month after delivery (T4), 2 months after delivery (T5), and 3 months after delivery (T6). We also investigated the antenatal risk factors for postnatal depression.

**Results:** A total of 1,775 women gave their informed consent to participate in the present study. The questionnaires consisted of the Japanese version of the Edinburgh Postnatal Depression Scale (EPDS) and psychosocial questions. The results suggested that 25% of primipara patients were at high risk of postnatal depression at 2 weeks after delivery.

**Conclusion:** In Japan, based on this result, public financial support has been provided for postnatal care—with an emphasis on mental health care—since 2017. The results showed that a high EPDS score in the antenatal period is an important risk factor for postnatal depression. In addition, one of the antenatal risk factors for postnatal depression among the Japanese cohort was “a perceived lack of family cohesion”, while practical and emotional support from their partners and others were not, which was inconsistent with the results of studies from other countries. We will discuss these characteristics from the viewpoints of Japanese culture and society.

**Keywords:** postnatal depression, community cohort study, EPDS, risk factor  
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### Recommendations on maternal safety based on the suicide cases in maternal death registration system in Japan

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**Background & Aim:** The Japan Association of Obstetricians and Gynecologists (JAOG) established a maternal death registration system and the Maternal Death Exploratory Committee in 2010. Obstetricians nationwide report on the death cases occurring during pregnancy or within 1 year after delivery to the committee. The Maternal Death Case Review Committee evaluates and examines the treatment process and possibilities of avoiding death in such cases. The committees consist of obstetricians, anesthesiologists, cardiovascular physicians, pathologists, forensic doctors, and so on.

**Methodology:** As of 2017, 279 cases were examined, and leading causes of maternal death were postpartum hemorrhage (23%), brain stroke (15%), and amniotic fluid embolism (12%). 14 cases of suicide had not been adequately examined, since psychiatrists had not been included in the committee so far. In 2017 the Maternal Death Case Review Committee including two psychiatrists reexamined those cases.

**Results:** The Maternal Death Exploratory Committee announced the following annual recommendations. (1) In maternity checkups and postnatal examinations, obstetricians should also pay attention to maternal mental health. (2) Mothers should be able to easily consult with obstetricians about mental problems, even if it passes several months after childbirth. (3) Obstetricians should cooperate with psychiatrists so that women who need psychiatric treatment can continue to visit psychiatry indefinitely. (4) To prevent suicide by puerperal psychosis, women with risk factors should be kept away from dangerous places and goods and sufficient information should be provided to family and local health nurses. (5) It is important to nurture psychiatrists specializing in perinatal mental health.

**Conclusion:** Owing to the death cases submitted by obstetricians, we could announce the recommendations to prevent maternal suicides. However, the number of cases is still small, and clinical information of the reported cases is not enough. It is a future issue to raise the interest and knowledge of obstetricians concerned with maternal mental health.

**Keywords:** suicide, maternal death, perinatal depression  
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### **Mental health in pregnancy: New findings on epidemiology and interventions**

#### **Pregnancy-related specific phobias**

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**Background and aims:** Specific Phobias are prevalent in the general population, but studies specifically in pregnancy are lacking. Specific phobias such as tokophobia (fear of childbirth), emetophobia (fear of vomiting), and blood-injection-injury (needle phobia) are particularly relevant to pregnancy and important to investigate. This study aims to describe the prevalence and characteristics of women with specific phobias during early pregnancy.

**Methodology:** The study design is a cross-sectional survey of 545 women booking in an inner-city London maternity service, recruited as part of the Well-being in pregnancy study (WENDY). Women were stratified according to whether they answered positive or negative on the two Whooley questions asked at their antenatal booking appointment. All participants who answer positive and a random sample of those who answered negative were approached to participate in the study. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) was administered to measure anxiety disorders (measuring specific phobias) and other disorders including current major & minor depressive disorders, bipolar I and II disorder, post-traumatic stress disorder and current acute stress disorder. Sociodemographic information was also collected. For analysis, expansion weights were used to account for oversampling of Whooley-positive and under-sampling of Whooley-negative participants.

**Results:** The maternity population prevalence estimate for specific phobias was 8% and over half (54%) of the women with specific phobias had comorbid mental disorders. Results on pregnancy related specific phobias and tokophobia will be presented.

**Conclusion:** Identification of pregnancy related phobias at antenatal booking could enable early treatment and reduce the likelihood of adverse obstetric interventions.

**Keywords:** Specific Phobias, pregnancy, tokophobia, emetophobia, needle phobia

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### **Use of UK hospital data and mental health records to investigate maternal physical health and obstetric outcomes for pregnant women with serious mental illness**

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**Background and aims:** Research has shown that women with serious mental illness have higher risk of hypertension and diabetes in pregnancy and higher risk of adverse obstetric outcomes than the general population. We used a novel methodology to compare maternal physical health and

pregnancy outcomes in women with serious mental illness (SMI) to the population of women giving birth in the same time period in local hospitals by using hospital episode statistics (HES) and standardised morbidity ratios (SMRs).

**Methodology:** A historical cohort of women with history of SMI who delivered babies from 2007-2013 was identified using anonymised mental healthcare data from the South London and Maudsley NIHR Biomedical Research Centre Clinical Record Interactive Search (CRIS) and linkage with national Hospital Episode Statistics. Standardised morbidity ratios (SMRs) were used to compare with all women who delivered babies from 2007-2013 in 3 local hospital trusts, identified using HES data. Outcomes: preterm birth, normal birth, diabetes and hypertension in pregnancy. The 'normal birth' measure is a composite outcome designed for use in HES and defined as spontaneous labour onset, spontaneous delivery (without instruments), no episiotomy, no use of general or regional anaesthetic. We also stratified by affective/ non-affective SMI illness/ medication use in pregnancy and history of admissions before pregnancy.

**Results:** There were a total of 70,942 pregnancies including 589 of women with SMI. Women with SMI had overall more adverse outcomes including preterm birth SMR: 2.30 (95% CI, 1.81-2.88), diabetes 1.65 (1.20-2.22) and hypertension in pregnancy 1.30 (1.00-1.65), particularly (from stratified analyses), if they had been recently admitted for psychiatric reasons or were exposed to an antipsychotic, antidepressant or mood stabiliser during pregnancy. They were also less likely to have a normal birth 0.74 (0.63-0.87) compared with the local population.

**Conclusion:** These findings demonstrate feasibility of using HES to compare health in pregnancy and obstetric outcomes across groups. This research methodology is currently being extended using local data linkages to research pregnancy and follow-up children in order to carry out research across the life-course.

**Keywords:** UK hospital data, physical health, mental health, obstetric outcomes, pregnant women

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### **Pregnancy advice for women with bipolar disorder from generic psychiatrists to perinatal specialists**

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**Background:** Women with bipolar disorder (BD) face an increased risk of suffering a severe episode of illness in the perinatal period and decisions are made more difficult by a lack of research, particularly on the teratogenicity of psychotropic drugs. Because of the complexity of decision-making involved, they rely on the advice of the psychiatrists who treat them to help them make decisions which could be critical to their health and that of their child.

**Methodology:** This was a qualitative study, involving in-depth interviews with 21 women with BD plus written data from a further 50 women on an online forum. A focus group was also conducted with a group of specialist perinatal professionals which included 5 perinatal psychiatrists, and 14 interviews were conducted with general adult psychiatrists, mostly by telephone. The views and perspectives of women themselves on the advice they receive are compared to those of the professionals treating them, specialist and non-specialist.

**Results:** Results will be discussed during the presentation

**Conclusion:** This study highlights the complexity of the decisions facing women with BD when they have children and the challenges facing the psychiatrists who advise them. Themes will be presented which suggest that improved access to information and specialist advice is needed.

**Keywords:** Bipolar disorder, perinatal period, qualitative study

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**Patient Decision Aid (PDA) for antidepressant use in pregnancy: A pilot randomized controlled trial**

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**Background and Aim:** Women with depression often face great difficulty in deciding whether or not to use an antidepressant in pregnancy. A Canadian team has developed an interactive, web-based PDA for antidepressant use in pregnancy, with the potential for international application, but its efficacy has not yet been evaluated in randomised trials. This pilot randomised controlled trial (RCT) aimed to assess the feasibility of a full-scale trial to evaluate the efficacy of this PDA in the UK.

**Methodology:** A pilot parallel-group randomised controlled trial. We recruited women whose clinicians recommended an antidepressant whilst pregnant or planning a pregnancy, and who had high levels of uncertainty regarding this. Women were recruited via clinician referral (from primary care, maternity and psychiatric services) and via direct online advertising to patients. Women were randomised to the active arm (online access to the PDA) or a control arm (online access to a list of standard resources), with 4-week and longer-term follow-up. The primary outcome was feasibility of the trial protocol, and secondary outcomes included preliminary effect sizes (decisional conflict, knowledge, depression/anxiety symptoms).

**Results:** We recruited 51 women from July/15 to Jan/17, with most women recruited via maternity services followed by self-referral. The study protocol was largely feasible, with good recruitment (following expansion of recruitment routes), protocol adherence and follow-up rates. The PDA received good overall satisfaction ratings (mean 4.2 on 1-5 Likert scale). Preliminary effect size analyses showed no difference between the intervention and control arms for the primary outcome of Decisional Conflict Scale (DCS) score at 4-weeks, taking into account baseline scores (active arm DCS mean score=32.2 at follow-up vs 53.2 at baseline, control arm DCS mean score=37.5 at follow-up vs 56.6 at baseline;  $p=0.44$ ). There were also no differences in knowledge or depressive/anxiety symptom scores between the two study arms.

**Conclusions:** This pilot RCT for a web-based PDA on antidepressant use in pregnancy showed that the study protocol was feasible, but preliminary effect size estimates showed no evidence of benefit from the intervention in terms of the primary outcome of decisional conflict or the secondary outcomes of knowledge and anxiety/depressive symptoms.

**Keywords:** Patient decision aid, antidepressant, pregnancy  
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**Depression: An exploratory randomised controlled trial of antenatal guided self-help for women (DAWN)**

Kylee Trevillion<sup>1</sup>, Domoney, J; Pickles, A; Bick, D; Byford, S; Heslin, M; Milgrom, J; Mycroft, R; Pariente, C; Ryan, E; Hunter, M; Howard, LM (on behalf of the ESMI team)  
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**Background and aims:** Depression is a common antenatal mental disorder associated with increased risk of adverse effects for the fetus, and significant morbidity for the mother. If untreated it can continue into the post-natal period and affect mother-infant interactions. Yet, there is little research evaluating the effectiveness or cost-effectiveness of antenatal psychological interventions for antenatal depression, particularly mild to moderate depression. International guidelines recommend a stepped care approach starting with Guided Self Help.

**Methodology:** DAWN is an exploratory randomised controlled trial of the effectiveness and cost-effectiveness of antenatal Guided Self Help,

modified for pregnancy. Antenatal Guided Self Help, in addition to usual care, was compared with usual care for pregnant women diagnosed with mild to moderate depression and mixed anxiety and depression, using the Structured Clinical Interview for DSM-IV Disorders. Women allocated to Guided Self Help were seen for up to eight sessions by a National Health Service Psychological Wellbeing Practitioner. The objectives of the trial were to establish recruitment and follow-up rates; compliance and acceptability, and provide preliminary evidence of intervention efficacy and cost-effectiveness. We hypothesised that women with mild or moderate antenatal depression treated with Guided Self Help would have significantly lower Edinburgh Postnatal Depression Scale [EPDS] depressive symptoms post-randomisation compared to women with mild or moderate antenatal depression receiving usual care

**Results:** 53 women participated in the trial: 26 received Guided Self Help and 27 usual care. Loss-to-follow-up rates were minimal and comparable across groups. 18 patients (69%) attended at least four sessions of Guided Self Help; 7 did not receive treatment due to changes in their health status or other competing commitments. Median number of sessions received was 6.5, with 68% attendance across sessions. Intervention fidelity was 100%. Women receiving Guided Self Help reported lower depressive symptoms post-randomization compared to women receiving usual care.

**Conclusion:** There were no trial-related adverse events and the main outcome effect size suggests clinically significant change. Antenatal Guided Self Help could therefore be associated with improved pregnancy outcomes.

**Keywords:** Pregnancy, guided self-help, depression  
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**New interventions in promoting the mother-infant relationship in vulnerable dyads in pregnancy and the 1st year after childbirth**

**Thinking about your baby: Evaluating an antenatal session based on the Brazelton approach with young parents.**

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**Background & Aim:** Romsey Mill Young Parents Program based at Romsey Mill Centre in Cambridge delivers an antenatal course for young fathers and mothers, covering aspects related to pregnancy and birth. In order to also promote awareness of baby behavior, the Brazelton Centre UK is working in collaboration with them and facilitating one session with new groups. This survey aims to identify if there are benefits for parents attending the session, namely regarding: knowledge about baby's communication and behavior, understanding baby behavior and how to respond to it, and parenting confidence. The strategies used to deliver the session will also be assessed.

**Methodology:** Each two-hour session on baby behavior was planned adapting an antenatal program created by Jeannette Appleton, based on the Brazelton approach. It includes diverse methods including videos, group activities, presentations and discussions to work on the following themes: baby behavior and skills, baby states and consoling strategies. Questionnaires are used before and after the sessions with young parents, in order to observe if there are any improvements.

**Results:** Preliminary results showed that participants ( $n=6$ ) found the session positive (good, really good or brilliant). There were general improvements on: knowledge of baby communication, knowledge on how to respond to the baby, knowledge about crying and consoling, and confidence as a parent. The preferred strategies used in the session were the group activities. Future sessions will add up more data for this analysis. In the piloting sessions knowledge of baby communication seems to have had the highest increase in mean values, probably related to the activities on baby states and cues.

**Conclusion:** The group activities were the preferred aspects of the session and we noticed that young parents usually require diverse strategies and dynamics for better motivation, engagement and learning. Overall, the session was well received. In the future, more dynamic activities will be implemented (e.g. icebreakers, games) and further conclusions will be drawn.

**Keywords:** Antenatal program, Brazelton approach, young parents  
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### Neonatal behavioral assessment scale in an early intervention service for at-risk newborns

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**Background & Aim:** Ameliorating parental psychosocial distress in an Early Intervention (EI) service plays an important role in the neurodevelopmental outcome of newborns in Neonatal Intensive Care Units (NICUs). The purpose of this study was to describe caregiver and provider confidence and knowledge and assess neurodevelopmental outcomes following delivery of a neurobehavioral early intervention using the Neonatal Behavioral Assessment Scale (NBAS) with newborns in a tertiary care hospital in Coimbatore, India.

**Methodology:** Forty-one infants were recruited into this randomized control trial during the period August 2016 to February 2017. Twenty-one mother-infant pairs were randomized to receive standard care and 20 to receive the NBAS in addition to standard care, along with continued monthly support visits. The NBAS helps to address the unique needs of the parent-infant relationship in families where the infant begins life in a the NICU of a tertiary hospital.

**Results:** We found evidence that incorporating a neuro-behavioral approach into service delivery for newborns referred to early intervention positively influences families and service providers. Families reported more satisfaction with the care given at the hospital and were more likely than those who only received standard care to return to the hospital for follow-up appointments. These findings have promise for potentially improving the efficacy of the delivery of an early intervention service for families of young infants who are cared for in NICU. Future research should replicate these results with a larger, more diverse samples.

**Conclusion:** Developmental vulnerability is often associated with the negative consequences of psychosocial distress among parents of babies admitted to NICU. Implementing a neurobehavioral model such as the NBAS in an EI service presents a unique challenge but one that supports both parents and babies hone their self-regulatory skills that lay the foundation for optimal social interaction skills. The NBAS should become the cornerstone of developmental interventions in the newborn period.

**Keywords:** Early Intervention Service, Neonatal Behavioral Assessment Scale (NBAS), Neonatal Intensive Care Unit (NICU)

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### Promoting mother-infant inter-subjective interaction in the context of perinatal mood and anxiety disorders: A feasibility study

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**Background & Aim:** Maternal mood and anxiety disorders during the perinatal period are associated with a range of adverse offspring outcomes that persist through childhood, adolescence, and into adulthood. Early disturbances in mother-infant inter-subjective interaction (bidirectional and mutually regulated exchanges of interaction characterized by shared affect, intention and attention) in the context of perinatal mental health problems has been identified as a key mechanism of effect. These findings highlight the need for intervention programs to improve the quality of mother-infant inter-subjective interaction for women accessing perinatal community mental health services (PCMHS).

**Methodology:** Mothers accessing a PCMHS and identified as needing support in their relationship with their infant were referred to the intervention (N = 30). The intervention was delivered to groups of 5-7 mother-infant dyads over 6 consecutive weeks (2-hour sessions) by a Clinical Psychologist and two Nursery Nurses. This play based psychotherapeutic intervention aimed to increase the frequency and quality of mother-infant inter-subjective interaction by fostering mother's ability to reflect on their infant's inner life of thoughts, feelings, and intentions. At pre-andpost-intervention mothers completed the Edinburgh Postnatal Depression Scale

(EPDS), the Generalized Anxiety Disorder Assessment (GAD-7), the Parenting Stress Index (PSI), and the Postnatal Bonding Questionnaire (PBQ). At post-intervention mothers also completed ratings on how helpful they found the intervention.

**Results:** At post-intervention there was a significant reduction in mother symptoms of depression and anxiety, significant improvements in the mother-infant relationship, and a significant decrease in parenting stress. All mothers rated the intervention as helpful, 73% very helpful.

**Conclusion:** A randomized control trial (RCT) is needed to establish the efficacy of this play based psychotherapeutic intervention for mothers presenting with moderate to severe mood and anxiety disorders during the perinatal period.

**Keywords:** Inter-subjective interaction, perinatal community mental health service, perinatal mood and anxiety disorders, play-based psychotherapeutic intervention

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### Assessing the efficacy of an intervention to facilitate mind-mindedness in mothers hospitalized for severe mental illness and relation to later attachment security

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**Background & Aim:** Mind-mindedness, defined as a parent's proclivity to perceive accurately his/her child's thoughts and feelings, has been shown to have positive benefits for parent-infant attachment security. Little is known about maternal mind-mindedness in the context of severe mental illness (SMI) or effective means by which to increase mind-mindedness. We investigated how SMI related to mind-mindedness and later mother-infant attachment security and tested the efficacy of a single-session video-feedback intervention designed to increase mind-mindedness.

**Methodology:** Mothers with SMI (n = 54) were filmed interacting with their babies on admission to and discharge from hospital. The videos were coded for appropriate and non-attuned mind-related comments and compared to data from a group of psychologically well mothers (n = 49). Twenty-two of the mothers with SMI participated in the mind-mindedness video-feedback intervention. The intervention attempted to increase appropriate mind-related comments and decrease non-attuned comments by directing mother's attention to what their infants might be thinking, feeling, wanting or experiencing and by offering alternate perspectives when the clinician believed the mother had misinterpreted her infants state. Thirty-two mothers participated in a 'standard care' video-feedback intervention aimed at improving maternal sensitivity. Changes in mind-mindedness between admission and discharge were compared across the two SMI groups. Attachment security was subsequently assessed in a small subset of mind-mindedness-intervention group mothers (n = 9) and a separate group of standard care mothers (n = 30) when infants were a mean age of 17 months.

**Results:** Compared to psychologically well mothers, those with SMI made fewer appropriate and more non-attuned mind-related comments on admission to hospital. The mind-mindedness intervention was associated with a decrease in non-attuned comments, such that on discharge, mothers did not differ from psychologically well controls. Infants whose mothers completed the mind-mindedness intervention were more likely to be securely attached and less likely to be classified as insecure disorganized than those of mothers who completed the standard care intervention

**Conclusion:** A single session of video-feedback to facilitate mind-mindedness in mothers with SMI may have benefits for mother infant interaction into the second year of life.

**Keywords:** Attachment security, mind-mindedness, Mother and Baby Unit, mother-infant interaction, severe mental illness

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**The John Cox Symposium: Psychosocial interventions for maternal depression in Sub-Saharan Africa**

**Perceptions of perinatal depression and health care needs: A study to inform development of a psychosocial intervention for perinatal depression in Malawi**

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**Background:** Perinatal depression (PND) is a major global health problem. There is evidence for effective psychosocial intervention for perinatal depression in low- and middle-income countries, but no such intervention has been developed for use in Malawi.

**Aim:** This study aimed to explore perceptions of perinatal women and key stakeholders in maternal health on PND and service needs to inform development of a culturally sensitive and acceptable psychosocial intervention.

**Methodology:** We used an exploratory qualitative design. 20 in-depth interviews were conducted with women who screened positive for depression using a locally validated version of Edinburgh Postnatal Depression Scale at antenatal and postnatal clinics in 1 rural and 1 urban health care settings in Lilongwe District. 10 key informant interviews were conducted with Primary Health Care Workers and Maternal and Child Health Coordinators. Informed consent was obtained from all participants. Interviews were transcribed, translated and analyzed using a thematic content analysis approach.

**Results:** Preliminary results demonstrate that the concept of depression was not well understood by perinatal women, although they could articulate they had a problem that they described in their own words. Depressive symptoms were attributed to: marital problems related to polygamy, lack of support, neglect and infidelity; financial problems; unplanned pregnancy, and fear of birth outcomes related to previous experiences or first pregnancy. All perinatal women expressed need for help. Preference was on mature, knowledgeable and approachable care providers.

PND was also viewed as a major health concern by key informants. Increased awareness, task shifting, capacity building, and inclusion of maternal mental health indicators in reproductive health care were recommended to effectively manage PND.

**Conclusion:** The preliminary results indicate that an intervention addressing relationship, psychosocial and economic issues would be effective and acceptable in local communities in Malawi, and that there is a need for health system strengthening to address PND.

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**Outcomes of group problem solving therapy on maternal depression in primary health care settings in rural Uganda: An intervention cohort study**

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**Background:** Perinatal depression is prevalent in primary health care settings, affecting up to 20% of mothers who are pregnant or have recently had a child. This condition constitutes a public health problem and may adversely affect outcomes of the newborn child. We evaluated the change in level of depression symptoms in perinatal women who received a midwife-led group problem solving therapy intervention in primary care clinics in rural Uganda

**Methods:** We consecutively recruited 153 second or third trimester mothers into a cohort. Mothers were eligible if they resided in the area of study, were aged >+18 years, and spoke English or Luganda. They were recruited into the cohort if they scored  $\geq 5$  on the interviewer-administered Patient Health Questionnaire (PHQ-9) for depression. All depressed women were also assessed with the 12 item WHO Disability Assessment Scale (WHO-DAS) for functioning. Problem solving therapy (PST) was administered to recruited mothers in a group setting for at least 4 sessions on a monthly basis. Assessments were done at baseline, 3 months and 6 months from baseline, as well as 2 months postpartum. Data were summarized in mean scores over time. Negative binomial regression was performed to assess change in mean PHQ-9 and WHO-DAS scores over time. Regression analysis was performed to examine factors associated with change.

**Results:** Of the 153 mothers, 73.4% (n=112) received 2 or more PST sessions. Of these, 45.5% (n=51/112) received 4 or more sessions, up to a total of 7. Out of the total sample (n=153), 18.4% did not attend any PST sessions at all. A minority of participants only received 1 session (n=12, 8.2%). There was significant reduction in mean PHQ scores (mean difference -7.13, CI -8.68 to -5.59,  $p < 0.001$ ) over 6 months. Clinical response (50% symptom reduction) was recorded in 69.1% of perinatal mothers. The change in WHO-DAS scores between baseline and 6 months was also significant (mean difference 22.93, 95%CI, 17.64 to 5.92,  $< 0.001$ )

**Conclusion:** Group problem-solving therapy reduced depression symptoms and improved functioning among perinatal women in primary care in rural Uganda.

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**Feasibility and acceptability of a collaborative care model for maternal depression in a primary health care facility in South Africa: A pilot study**

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**Background:** High prevalence of maternal depression combined with an estimated 75 percent treatment gap for common mental disorders in South Africa poses a public health and social burden.

**Aim:** To assess the feasibility and acceptability of a collaborative care model incorporating an existing, facility-based, task-shared, psychosocial intervention for depression in perinatal women.

**Methodology:** The study design was a pilot intervention cohort study. A collaborative care plan for maternal depression was co-developed with the district Department of Health as part of the **PR**ogramme for **IM**proving **M**ental health **carE** (PRIME-SA) study. The setting is an

urban township in South Africa. Primary care nurses consulting women attending antenatal and postnatal services were trained to identify women with depressive symptoms using a short maternal depression screening tool and clinical assessment. Pregnant and postnatal women (6–48 weeks postpartum) who had mild/moderate depressive symptoms were referred to an existing 9-session manualized counselling intervention addressing common triggers of depressive symptoms, based on cognitive behavioral approaches, provided by a facility-based lay counsellor. Women with moderate/severe depressive symptoms were referred to both the counsellor and clinic doctor. Participants were administered a questionnaire including the Patient Health Questionnaire 9 (PHQ9) and WHO Disability Assessment Schedule (WHODAS II) at baseline and 4 months after baseline. Process evaluation interviews were conducted with a subset of service user participants and service providers after the 4-month follow-up to explore acceptability and feasibility of the intervention.

**Results:** Of the 31 women recruited, one was referred for specialist assessment. Thirty were referred to the counsellor, of which three attended 1 session, five attended 2 sessions and 22 attended 3 to 9 sessions. Preliminary findings based on PHQ9 scores indicate a decline in depression symptom scores from baseline (mean=12.26, sd 4.11) to 4-month follow-up (mean=4.97, sd 4.76); mean difference score of -7.29 (F1, 59) = 41.05,  $p < .001$ . A similar improvement in functional disability was observed on the WHODAS between baseline (mean=8.90, sd 3.76) and endline (mean=5.03, sd 3.82); mean difference score of -3.87 (F1, 59) = 15.89,  $p < .001$ .

**Conclusions:** The implications of these findings will be discussed in relation to the process evaluation.

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#### **A comparison of the prevalence, correlates and outcomes of perinatal depression in adolescent and adult mothers – Results from the EXPONATE randomized controlled trial in Nigeria**

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**Background and aims:** Globally, adolescent pregnancy is a pressing public health issue. There is evidence to suggest that rates of perinatal depression are higher in adolescents than commonly found among perinatal adults. As in adults, adolescent perinatal depression is a risk factor for pre-term birth and low birth weight. In this study, we compared the differences in the impact of depression, parenting roles and response to treatment among perinatal adults and adolescents presenting in primary care.

**Methods:** In a cluster randomized controlled trial of psychosocial interventions for perinatal depression in primary maternal care in Nigeria, we compared a low intensity treatment to a high intensity intervention package. We screened 9352 pregnant women with the Edinburgh Postnatal Depression Scale (EPDS), 772 (8.3%) of whom were adolescents, aged 19 years and under. A total of, 686 consenting women (131 (19.1%) adolescents) were recruited of which 576 (109 (18.9%) adolescents) were successfully followed up at 6 months following delivery.

**Results:** The prevalence of depression in pregnant adolescents was 18.8% compared to 6.9% in adults. At baseline, adolescents had poorer adjustment and attitudes to pregnancy. Even though mode of delivery was similar between the two groups, adolescent mothers had significantly smaller babies at birth (mean weight: 2.86kg versus 3.03kg,  $p=0.01$ ). At 6 months postnatal period, there were no significant differences in the recovery rates from depression across both treatment arms and between adolescent and adult women. However, adolescent mothers continued to have poorer maternal attitudes and adjustments as well as poorer parental skills as shown on a scale measuring responsiveness and involvement with their babies.

**Conclusion:** Adolescents carry a higher burden of perinatal depression than adults and show enduring parenting skills deficits even following treatment. Effective treatment of the condition needs to be complimented with specific approaches that target adjustment to motherhood and deficits in parenting skills among depressed adolescent mothers.

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#### **Task sharing of psychological treatment for maternal depression in Khayelitsha, South Africa: A randomized controlled trial**

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**Background and aims:** There is a substantial treatment gap for maternal depression in low-resourced regions. The AFFIRM-SA randomized controlled trial (RCT) evaluated the effectiveness of a task-sharing psychological intervention for depressed pregnant women in a low-resource context in Cape Town, South Africa.

**Methodology:** The study was an individual-level two-arm randomized controlled trial. A total of 425 depressed pregnant women were recruited from two antenatal clinics in a low-income informal settlement area of Cape Town, using the Edinburgh Postnatal Depression Scale to screen for depression; 209 women were randomized into the intervention arm and 216 into the control arm. Participants in the intervention arm received six psychological counseling sessions provided by trained community health workers (CHWs). The sessions mainly included psycho-education for depression, problem solving and healthy thinking. The control group received three monthly supportive phone calls from a CHW. Participants were followed-up at 8 months gestation and 3 and 12 months postnatally. The primary outcome was a response on the adapted 17-Item Hamilton Depression Rating Scale (HDRS-17), defined as a reduction of 40% in scores at 3-month postpartum compared to baseline.

**Results:** In total, 74.6% of participants in the intervention arm received at least one counseling session, and 47.8% received all 6 sessions; 88% of participants in the control arm received all three phone calls. Follow-up rates range between 75% and 79%; 54.1% and 64.4% completed all four assessments in the intervention and control arms, respectively. A modified intention-to-treat analysis showed no difference in response on the HDRS between participants in the treatment arm (55.4%) and control arm (47.6%) at the 3 months postnatal assessment. There was, however, a marginally significant difference at the 12 months postnatal assessment.

**Conclusion:** The intervention did not result in a significant reduction in symptoms at the primary analysis point, compared to enhanced usual care. However, the intervention seems to provide a better long-term impact. Task sharing can be effective but the mode and content of the intervention should be carefully considered.

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#### **Trauma and childbearing**

##### **Birth trauma and support: When 'good enough' isn't good enough**

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**Background and aims:** There is substantial evidence that continuous support during labor and birth results in women using less analgesia, being less likely to have an operative birth and being more satisfied with birth. Conversely, there is evidence that poor support during labor and

birth is associated with increased symptoms of post-traumatic stress disorder (PTSD) following birth. This talk reports two studies that systematically examined the role of support from healthcare professionals in preventing the negative psychological impact of stressful complications during birth. In particular we examine what type and level of support needs to be provided to achieve this.

**Methodology:** Two experimental studies were conducted using six vignettes of birth to manipulate support (positive, neutral, negative) and events of birth (high or low stress). Women ( $n = 256$  and  $n = 183$ ) were randomly assigned to conditions and asked to read the vignettes and imagine how they would feel if they were going through the birth described. Measures were then taken of women's ratings of perceived control during birth, perceived trauma (PTSD criterion A) and the effect on anxiety and mood.

**Results:** Both studies found that women in the positive support condition reported greater perceived control, less perceived trauma and anxiety compared to women who read the neutral and negative conditions (all  $ps < .001$ ). There were no significant differences in the levels of control, trauma or anxiety reported by those in the neutral and negative support conditions. Importantly, negative and neutral support had a similar impact with both resulting in perceptions of less control and more trauma.

**Conclusions:** These studies offer evidence that, although stressful or traumatic birth events are a risk factor for postpartum PTSD, this may be prevented by providing high levels of support during birth. Results also suggest that neutral, or "good enough", care from healthcare professionals may be similar to negative care in its impact on women. Healthcare professionals therefore need to provide actively positive support to prevent PTSD symptoms following complicated or difficult births.

**Keywords:** labor, birth, support, stress, PTSD, anxiety, control

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#### Development of an early intervention to prevent posttraumatic stress symptoms after traumatic childbirth

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**Background and aims:** Evidence-based early interventions to prevent the development of posttraumatic stress disorder are lacking. Emergency cesarean section (ECS) is indicated in cases of risk to maternal and/or fetal life, therefore qualifying as a traumatic stressor for the mother, linked with a risk of posttraumatic stress disorder (PTSD). Maternal PTSD following traumatic childbirth negatively impacts on the attachment relationship with and the development of the infant. This proof-of-principle randomized controlled study evaluated whether the number of intrusive traumatic memories mothers experience after ECS could be reduced by a brief computerized cognitive intervention.

**Methodology:** 56 women after ECS were randomized to one of two parallel groups in a 1:1 ratio: intervention (usual care plus computerized cognitive task) or control (usual care). The intervention group engaged in a visuospatial task (computer-game 'Tetris' via a handheld gaming device) for 15 minutes within six hours following their ECS. The primary

outcome was the number of intrusive traumatic memories related to the ECS recorded in a diary for the week post-ECS.

**Results:** As predicted, compared with controls, the intervention group reported fewer intrusive traumatic memories ( $M = 4.77$ ,  $SD = 10.71$  vs.  $M = 9.22$ ,  $SD = 10.69$ ,  $d = 0.647$  [95% CI, 0.106, 1.182]) over 1 week (intention-to-treat analyses, primary outcome). There was a trend towards reduced acute stress re-experiencing symptoms ( $d = 0.503$  [95% CI, -0.032, 1.033]) after 1 week (intention-to-treat analyses). Times series analysis on daily intrusions data confirmed the predicted difference between groups. 72% of women rated the intervention "rather" to "extremely" acceptable. Per protocol analyses showed significantly less acute stress re-experiencing symptoms after 1 week in the intervention group. After a month, significant group differences regarding PTSD diagnostic criteria and avoidance symptoms were found.

**Conclusions:** This represents a first step in the development of an early and potentially universal intervention to prevent postnatal PTSD symptoms after traumatic childbirth that may benefit both mother and child.

**Clinical Trial Registration:** ClinicalTrials.gov, www.clinicaltrials.gov, NCT02502513

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#### Preventing post-traumatic stress disorder: The Stress and Wellbeing after Childbirth Study (STRAWB2)

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**Background and Aims:** Posttraumatic stress disorder (PTSD) after childbirth is major cause of psychological distress postnatally, with 3% of women suffering at full and 5-9% when sub-diagnostic levels when partial PTSD is included. PTSD adversely affects women's functioning at a critical time for family relationship development. Whilst 30% of women experience childbirth as traumatic this does not inevitably lead to PTSD. Indeed, the more usual response is natural resolution. Cognitive and emotional response patterns to what are distressing but normal early responses such as involuntary intrusions can influence whether the experience of trauma translates to PTSD. Where women view these intrusive responses as signs of illness or failure to cope and attempt to avoid these responses this contributes to traumatic memories not being processed in a normal way. Unprocessed memories lead to the flashbacks and nightmares that are characteristic of PTSD. There is therefore potential to prevent the development of PTSD through attention to early cognitive and emotional responses. We have already developed feasibility tested simple self-help material for women in the form of a leaflet and film clip derived from the theoretical mechanisms about how PTSD develops.

The aim of STRAWB2 is to assess whether early postnatal midwifery provision of these self-help materials to women who have experienced birth as traumatic leads to reduced incidence of full and partial cases of PTSD at 6-12 weeks postnatally when compared to usual care.

**Methodology:** A large sample of women were screened early postnatally prior to discharge by community midwives to assess whether they experienced their birth as traumatic. Women who found their birth traumatic were randomized, 330 per arm, to receive the self-help material or usual care. They then completed the Clinician Assisted PTSD Scale at 6-12 weeks postnatally to determine PTSD status. Group comparisons for the rates of full and partial PTSD will be presented.

**Conclusions:** Sample sizes are powered to detect significant differences and provide a definitive test of the utility of this easily implemented, low-cost, targeted prevention strategy which if effective, can then be rolled out as routine service provision.

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**Association between maternal childhood trauma and offspring childhood psychopathology: What have we learnt from longitudinal studies?**

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**Background and Methodology:** We have used data from the South London Child Development Study and the ALSPAC cohort to confirm the transgenerational relationship between maternal exposure to childhood maltreatment and offspring development of psychopathology.

**Results and Conclusions:** Across both cohorts, we clearly identify the pivotal role of maternal depression during pregnancy, which is 10-times more likely in women exposed to maltreatment as in itself associated with maltreatment in the offspring and with offspring psychopathology. This evidence reinforces the need to prevent or treat depression during pregnancy as a way not only to limit maternal suffering but also to protect the next generation.

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**Mom Power: A multi-family intervention for mothers with childhood trauma histories and their young children, aimed to support mental health and parenting**

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**Background and aims:** Women with childhood trauma history are at risk for Depression, Posttraumatic Stress Disorder (PTSD), and inadequate parenting. We have developed a 13-session relationship-focused group intervention for trauma-survivor mothers and their young children ages 0-5 (Mom Power, MP). We have conducted a pilot RCT to test effectiveness of the model.

**Methodology:** Participants (N = 122) were high-risk mothers (e.g., interpersonal trauma histories, mental health problems, poverty) and their young children (age <6 years), randomized either to Mom Power (treatment condition, n=68), or weekly mailings of parenting information (control condition, n=54). In this study, the 13-session intervention was delivered by community clinicians trained to fidelity. Mothers (≥ 15-years-old, English-speaking and with children under the age of 6 years) completed pre and post-intervention measures on mental health (depression, PTSD) and parenting (parenting stress questionnaire, Working Model of the Child Interview WMCI). The WMCI was coded by blind coders for representational categories (balanced/non-balanced) and Parenting Reflectivity. On a subset (treatment condition, n=15; control condition n=17) we conducted fMRI brain scans before and after the intervention period to study neural circuitry associated with treatment response.

**Results:** Mental health symptoms and self-rated parenting stress significantly decreased for the MP condition compared to control group. The proportion of women with balanced (secure) representations increased in the MP group but not in the control group. Parenting Reflectivity increased significantly for mothers in the MP group with no change in the control condition. We found MP effects on brain activation related to reductions in self-rated parenting stress.

**Conclusions:** The MP group intervention is an effective and feasible intervention for trauma-survivor mothers who suffer from depression, PTSD, and challenges in parenting and reflective capacity.

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**Advances in the detection and screening for adverse childhood experiences in the perinatal period**

**Predictors and outcomes of maternal psychosocial risk profiles in pregnancy: Findings from the All Our Families study, Canada**

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**Background & Aim:** Previous research on prenatal stress and social support have primarily used variable-centered approaches, with limited knowledge on whether profiles exist, how early childhood adversity experiences predict these profiles, and whether these profiles are differentially associated with maternal and child outcomes postnatally. Using a novel person-centered approach, we identify profiles of pregnant women whose children may later be at particular risk of poor child development.

**Methodology:** The current study applied latent profile analysis to prenatal stress and social support in a sample of 1,994 women followed longitudinally. Maternal reports of prenatal stress, prenatal social support, adverse childhood experiences (i.e., household dysfunction, physical/emotional abuse, sexual abuse), maternal postpartum depression, maternal postpartum stress, and child development outcomes were obtained. Maternal health-risk at birth was rated by healthcare professionals.

**Results:** We identify three distinct profiles of maternal stress and maternal social support: low stress-high support (69.4%), moderate stress-moderate support (25.7%), and high stress-low support (4.9%). Mothers in the high-stress-low-support group had experienced more physical/emotional abuse in childhood, while mothers in the moderate stress-moderate support group had experienced more family dysfunction. The moderate and high stress groups had poorer reproductive and physical health, and their children had poorer developmental outcomes compared to the low-stress-high-support mothers. These differences in outcomes were found after controlling for maternal adverse childhood experiences.

**Conclusion:** Identifying levels of stress and social support in pregnancy and implementing interventions for mothers at risk is crucial in the pursuit to mitigate family-wide deleterious outcomes. Screening for stress and social support may provide useful information for identifying mothers and infants who are most at risk for poor outcomes in the postpartum period.

**Keywords:** adverse childhood experiences, prenatal stress, prenatal support

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**Maternal childhood trauma and offspring childhood psychopathology**

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**Background & Aim:** Studies have shown that a mother's history of child maltreatment is associated with her child's experience of internalizing and externalizing difficulties. This study aims to characterize the mediating pathways that underpin this association with particular reference to antenatal depression.

**Methodology:** Data on a mother's history of child maltreatment, depression during pregnancy, postnatal depression, maladaptive parenting practices and her child's experience of maltreatment and internalizing and externalizing difficulties were analyzed in an Avon Longitudinal Study of Parents and Children (ALSPAC) sample of 9397 mother-child dyads followed prospectively from pregnancy to age 13.

**Results:** Maternal history of child maltreatment was significantly associated with offspring internalizing and externalizing difficulties. Maternal antenatal depression, postnatal depression and offspring child maltreatment were observed to significantly mediate this association independently.

**Conclusion:** Screening and early identification of, and provision of support to, mothers with traumatic childhoods should become routine as a means to protecting their own and their children's psychological well-being.

Interventions for expectant women with a maltreatment history and/or depression could include offering high-quality social support, improved access to psychological therapies, as well as parenting programs aimed at promoting sensitive and warm caregiving practices. It is important that vulnerable women are identified as early as possible, such as during pregnancy when they routinely come into contact with healthcare services.

**Keywords:** adverse childhood experiences, ALSPAC, antenatal depression, child maltreatment, offspring internalizing and externalizing problems, postnatal depression

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### Screening for childhood abuse in a sample of women treated in a UK mother-baby inpatient unit: Using the Childhood Experiences of Care and Abuse questionnaire

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**Background & Aim:** Maternal experiences of childhood abuse are associated with an increased risk of perinatal mental illness and with altered maternal physiology which can have implications for the fetus and developing infant. There is little research on the prevalence of childhood abuse in women who experience an episode of severe mental illness (SMI) in the perinatal period. Research from general adult samples suggests that there is a need to ask directly about early childhood experiences as people rarely disclose this information spontaneously. The following study trialed the use of a questionnaire in a routine clinical service to 1) determine the acceptability of using a standardized measure of childhood abuse in an in-patient setting, and 2) identify the prevalence of childhood abuse amongst a sample of women experiencing SMI.

**Methodology:** The current study involved women who were admitted to a mother-baby inpatient unit (MBU) over a two-year period. All women were invited to meet with a clinician to complete a questionnaire (CECA-Q) about their early experiences. The questionnaire was administered like a semi-structured interview. 40% (N=71) of those admitted to the inpatient ward over a 2-year period completed the CECA-Q. The prevalence of emotional abuse, physical abuse and sexual abuse was measured and associations with diagnosis and symptom severity were examined.

**Results:** The use of the CECA-Q in an in-patient setting proved acceptable when administered in a clinically sensitive way. In this study, prevalence of childhood abuse in women who experienced SMI in the perinatal period was high. 73% of the sample had experienced at least one form of abuse (emotional, physical or sexual abuse) in childhood. Emotional abuse was most common and different forms of abuse were highly inter-related.

**Conclusion:** Given that maternal experiences of childhood abuse may be an indicator of those women and infants most at risk for adverse outcomes, this study suggests that clinical care for women who experience a severe mental illness should consider early adverse experiences so that appropriate interventions can be provided. The perinatal period provides an ideal opportunity to intervene in the intergenerational transmission of psychological risk.

**Keywords:** Childhood Experiences of Care and Abuse (CECA-Q), Mother and Baby Unit

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### Links between childhood emotional adversity and mental health: Crucial but under-researched and often misunderstood in perinatal mental health

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**Background & Aim:** Poor maternal mental health, particularly in pregnancy and postnatally ('perinatal mental health'), is a major cause of suffering, disability and death in mothers, as well as having substantial negative effects on the children and wider family.

**Methodology:** There is growing evidence of this impact spreading across the generations, through cycles of emotional adversity and the lasting and common severe effects of these on child and adult mental health and functioning.

**Results:** These mental health effects are well described but not widely understood, knowledge about effective interventions is limited, and availability of interventions is generally extremely poor. The implications for perinatal mental health clinical practice and research are not adequately appreciated, leading to serious deficiencies in both.

**Conclusion:** Programs aimed at improving the lives of the most disadvantaged people are most likely to be effective by focusing on the early years of life, including mental health care of mothers and fathers at this time, in a context of better understanding of these effects, collaborative multiagency pathways, dedicated services and more sophisticated research.

**Keywords:** Childhood emotional adversity, perinatal mental health, intergenerational effects

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### Specialized care for mother-baby – Perspectives and collaboration from four countries

#### Perinatal care data from the Netherlands and a review of all international guidelines

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**Background & Aim:** Several countries have developed Clinical Practice Guidelines (CPGs) regarding treatment of perinatal depressive symptoms. We aimed to compare all international guidelines to guide clinicians in best clinical practice. In addition, we present data on national surveys and compare Dutch clinical practice to international care standards.

**Methodology:** 1. Only CPGs adhering to quality criteria of the AGREE instrument and including a systematic review of evidence were included. Our initial search resulted in 1,094 articles. After first screening, 40 full-text articles were screened. Of these, 24 were excluded for not being an official CPG. In total sixteen CPGs were included originating from 12 countries. Eight guidelines were perinatal specific and eight were general guidelines. 2. An online survey was developed and sent to Dutch gynecologists and midwives. The survey consisted mainly of multiple-choice questions addressing guideline familiarity and current practice of the respondent. Also, caregiver characteristics associated with guideline adherence were investigated. 3. A population-based cohort of 153,952 Dutch pregnancies was identified covering the period between 1999 and 2014, using a linkage between the PHARMO Database Network and the Netherlands Perinatal Registry (PRN). Antidepressant use in the year before pregnancy, during pregnancy and the first year after delivery was available to investigate prescribing patterns.

**Results:** 1. For new episodes, both during pregnancy and postpartum, guidelines agree on psychotherapy as initial treatment for mild to moderate depression and antidepressants for severe depression. During pregnancy, four guidelines advise to continue antidepressants, while there is a lack of evidence supporting this recommendation. Breastfeeding is encouraged even when taking antidepressants. 2. In the Netherlands, overall guideline adherence was 13.9%, with gynecologists having a higher adherence rate (OR 2.10, 95%CI, 1.02-4.33) than midwives. 3. A significant rise in antidepressant use in the perinatal period was seen from 1999 to 2014, especially during pregnancy; 0.8% was taking antidepressants during pregnancy in 1999/2000 compared to 2.1% in 2013/2014. The portion of women discontinuing antidepressants during pregnancy decreased from 81% in 1999/2000 to 54% in 2013/2014.

**Conclusion:** We discuss change in perinatal treatment over time and differences within countries.

**Keywords:** pregnancy, postpartum, depression, international guidelines, antidepressants

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### Can MBUs make a difference and how can we investigate their effectiveness? New and old methods and preliminary results from the UK

Lauren Capron

**Background & Aim:** Several countries internationally now offer admission to psychiatric Mother and Baby units to women with acute severe mental illness but little is known about their effectiveness (clinical outcomes and mother-infant interaction quality) compared to other forms of acute care. We will present two approaches to this research question and data from the clinician completed survey carried out previously (the UK Marcé database) and a longitudinal cohort study (the ESMI MBU study). Aim is to investigate the effectiveness of psychiatric Mother and Baby units (MBUs) and assess who is most likely to benefit from a MBU and who from other forms of acute care.

**Methodology:** Marcé clinician completed database; longitudinal cohort using advanced causal inference methods for future main analysis and clinician report for a detailed process evaluation.

**Results:** 1197 mothers on Marcé checklist were included and predictors of good outcomes analyzed, with no comparison group cared for by generic services. Most women left the unit without needing social care supervision but women with schizophrenia (OR 5.16, 95% CI, 2.61-10.21) or personality disorder (OR 9.29, 95% CI, 3.46-24.91) were more likely to be discharged with their babies under social care supervision. The recent longitudinal cohort study includes 280 women admitted to either an MBU, or an acute general ward or a crisis resolution team. Process evaluation data suggests that although MBUs were more likely to routinely include relevant parenting and psychological support, they were less likely to routinely offer support related to finances or accommodation. Preliminary findings from baseline data will also be presented.

**Conclusion:** Studies of effectiveness of MBUs are needed, including investigation of what MBU care consists of and who may not benefit from MBU care, to inform clinical guidelines.

**Keywords:** Mother-Baby Units, mental illness, cohort, survey

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### Moving away from conventional outcome measures - Multidisciplinary approaches to measuring outcomes in an MBU in India

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**Background & Aim:** The psychiatric Mother and Baby unit at NIMHANS admits mothers and infants with another caregiver. This gives us a unique opportunity to address several areas in addition to maternal psychiatric illness and mother-infant interaction. Interventions are not restricted only to the treatment of mental illness and dyadic interventions. The multidisciplinary team also focuses on partner issues, marital relationship, family's attitude and knowledge about the mother's illness, future pregnancy planning, infant development, breastfeeding and support systems (health care and social). Aim is to discuss measurement of a range of outcomes among mother-infant dyads admitted to a Mother and Baby unit (MBU) by a multidisciplinary team.

**Methodology:** Data was systematically recorded regarding various types of outcomes for all mother-infant dyads. Each team member assessed outcomes based on their expertise. Analysis focused on the different dimensions of outcomes.

**Results:** 116 mothers were included and outcomes as well as predictors of good outcomes analyzed. Most women (89%) left the unit with clinical improvement as measured by CGI. Improvement in mother Infant interaction was also seen in majority. However, social outcomes such as partner relationship and family interactions were improved only in 65%. Partner violence and poor relationship between families of origin and procreation predicted poor social outcomes and persistent psychiatric symptoms. Poor relationship of the index patient with her own mother also predicted poor outcomes. Poor health care support and lack of a plan for contraceptive planning was linked to low income and low education.

**Conclusion:** In low resource countries, it may not be enough to focus on conventional outcome measures. Admissions with caregivers though stressful is more culturally acceptable and gives scope to improve outcomes holistically.

**Keywords:** Mother-Baby Unit, psychiatric illness, interventions, low resource countries, culture, social factors

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### Cross-continental collaboration for understanding postpartum major depression with psychotic features

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**Background & Aim:** Mood related psychotic symptoms in the postpartum period can lead to significant morbidity and mortality for mother and child. Collaboration of specialized psychiatry inpatient units focused on the care of postpartum women provides shared data and capitalizes on combined clinical expertise to better understand postpartum major depression with psychotic features (MDD w/ PF) and develop treatment regimens.

**Methodology:** Members of three specialized psychiatry inpatient units in the US, India and the Netherlands worked together to compare and pool data from each unit on their patients with MDD w/ PF in relation to patients with postpartum manic or mixed episodes and patients with acute affective psychosis. The data collection process from each program is outlined to provide the context set by the history of each unit and the similar and unique features of each unit's treatment of women with MDD w/ PF. Data from each unit was reviewed and a process undertaken to ensure similar data was pooled. Treatments are compared for those with more predominant psychosis, more predominant depression and with more predominant mania.

**Results:** Initial combination of the data showed much different prevalence between the three units based on diagnosis with the US having more patients with MDD w/ PF, India with more patients with Acute Psychosis and the Netherlands with more patients with Bipolar Disorder. Using phenotyping work the Netherlands group had done as a guide, patients were characterized beyond diagnoses to identify those with new onset of psychotic and manic symptoms in the postpartum period and whether the patients had more predominant psychotic, manic or depressive symptoms. This has resulted in rethinking data collection for the US. Treatments include lithium and ECT in addition to antidepressants and antipsychotics.

**Conclusion:** Cross-continental data collection from three specialized psychiatry inpatient units for postpartum women enabled the study of MDD w/ PF, a group difficult to access and study by other means, capitalizes on the similarities and unique aspects of each unit and community, and provides a foundation for learning from one another. This project serves as an example for future collaborations of specialized perinatal psychiatry inpatient units.

**Keywords:** perinatal psychiatry inpatient units, major depression with psychotic features, collaboration

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### Neurobiology of postpartum psychiatric disorders

#### Applying genetic risk scores to an ethnically diverse sample of postpartum women

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**Background and Aims:** Postpartum depression (PPD) is a perinatal form of major depressive disorder (MDD), that affects approximately 1 in 7 women (prevalence 10-15%). The genetic contribution to PPD etiology is not well understood, particularly how genetic predisposition to other psychiatric disorders predicts risk for PPD.

**Methodology:** A total of 1512 women were recruited at six weeks postpartum from three obstetrical clinics in North Carolina. PPD status was determined using the MINI-plus (v6). Biological samples were also taken for genotyping using Illumina Multi-Ethnic Genotyping Array. We used association results from the Psychiatric Genomics Consortia (PGC) to create genetic risk scores in our cohort to estimate the relationship between risk for various psychiatric disorders (e.g. MDD, bipolar disorder, anxiety) and PPD. These analyses are underway now and will be presented for the first time in September.

**Conclusion:** These results may provide empirical genetic evidence for important shared genetic etiology between PPD and other psychiatric disorders. Only by understanding of the interplay between genetic and other risk factors for PPD can we develop diagnostic categories informed by biology, identify individuals at risk before the illness emerges, and offer effective and individualize treatment options.

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#### Immune dysfunction in postpartum psychosis

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Postpartum psychosis (PP) is considered as the most severe form of psychiatric manifestation during postpartum period and is associated with significant morbidity. The prevalence of PP is around 1–2 per 1,000 childbirths. Although bipolar disorder is an important risk factor for PP, a majority of patients with PP have no prior diagnosis of a psychiatric illness. The exact etiology PP remains unclear.

Normal postpartum period is considered to be a phase of elevated immune responsiveness and recent evidence suggests the role of an abnormal activation of immune system in PP. The dysregulation of immuno-neuro-endocrine set point in PP with a notable over-activation of the monocyte/macrophage arm of the immune system appears to play an important role in PP. In PP, instead of the normal postpartum T cell elevation there is a significant elevation of monocyte levels along with an upregulation of several immune-related monocyte genes. There is also an alteration in the glucocorticoid receptor  $\alpha/b$  gene expression ratio in the monocytes of PP patients, correlating with their immune activation (Bergink et al 2013).

In a recent study from NIMHANS, Bangalore it was found that in subjects with first-onset PP, peripheral blood showed decreased naive CD4 and CD8 T cells, while activated CD8 and memory regulatory T cells (Tregs) were increased in women with PP. Also, the CD14<sup>+</sup>CD16<sup>+</sup>non-classical monocytes, CD11c<sup>+</sup>myeloid DCs and cytotoxic CD56<sup>dim</sup>CD16<sup>+</sup> were reduced, while CD56<sup>bright</sup>CD16<sup>+</sup>regulatory NK cells were elevated. These findings suggest a generalized immune dysregulation in PP.

The research in the area of immune dysfunction in PP has potential translational aspects such as novel treatments. There is a need for further research in to this interesting area.

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#### Association between infant attachment behaviors and methylation of the Oxytocin Receptor Gene (OXTR): Findings from the ATP Generation 3 Study

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**Background:** There is widespread interest in the role of Oxytocin in human social relationships, including maternal-child attachment behavior. The oxytocin receptor gene (OXTR) is responsible for the expression of the oxytocin receptor and plays a rate-limiting step in oxytocin signaling. The purpose of this study was to examine relationships between infant attachment behavior and epigenetic modification of the OXTR by DNA methylation (DNAm).

**Methods:** Data were drawn from a unique intergenerational study that has followed a cohort of 2000 Australian parents (Generation 1) and their offspring (Generation 2) from birth in 1983, and cohort offspring (Generation 3) from birth since 2011. Perinatal information was obtained from Generation 2 mothers at 36 weeks of pregnancy and at 8 weeks post birth. DNA was collected on a nested subsample of the Generation 3 cohort who completed the Strange Situation Protocol (SSP) at age 1 year. The SSP is the gold-standard measure of infant attachment and provides four primary attachment classifications: Secure (B) and Avoidant (A), Resistant/Ambivalent (C) and Disorganized (D). Epigenome-wide methylation arrays were conducted by the Australian Genome Research Facility, with methylation specific to OXTR made available for this study.

**Results:** Multinomial regression analyses were conducted in which the mean methylation score across 22 probes within OXTR were regressed onto a 4-level dependent variable representing B (reference), A, C, and D attachment patterns. No association was observed between OXTR methylation and resistant and disorganized attachment patterns. There was, however, a sizeable association between OXTR methylation and avoidant attachment pattern ( $\beta=69.65$ , 95%CI, 23.1-116,  $p=0.003$ ). This explained 5.9% of the variation in attachment behavior.

**Conclusion:** The role of OXTR epigenetics in maternal-child attachment behavior is a new field with minimal published research. These results suggest that different defensive strategies may elicit a different response within the epigenome, with avoidant strategies potentially changing the methylation profile of OXTR DNAm. The implications & inferences from the results will be discussed.

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#### Novel technological approaches to the delivery of perinatal mental health education and training for families and professionals in the UK

##### The role of co-creation in the development and implementation of the Baby Buddy app, a digital health intervention and its focus on maternal mental health

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**Background & Aim:** A healthy start to life is the key to reducing inter-generational disadvantage. Despite the availability of universal health care, evidence shows the existence of health inequity, especially in relation to mental health. The public health charity Best Beginnings continues to use a multiphase approach based on co-creation during the development and implementation of the Baby Buddy app, a multi-award-winning free app that guides you through pregnancy, birth, parenting and beyond. The charity has developed a separate series of resources with a focus on maternal mental health that are embedded within the app, emphasizing that mental health is as important as physical health.

**Methodology:** This study reviewed the methodology of co-creation employed by Best Beginnings to design and implement the Baby Buddy app. The development of the content within the app and the integration of the app into local care pathways was examined using feedback from surveys, focus groups and health professionals training to use the app and the in-app analytics.

**Results:** Baby Buddy is an evidence-based app with personalized daily information and over 300 video clips and 500 FAQs. The app contains over 100 mental health films that are designed for parents and health professionals. The process of co-creation was valued within health professionals and parents alike in improving outcomes related to breastfeeding self-efficacy, bonding and attunement and strengthening

multidisciplinary working. The in-app analytics, capturing real time data of the Baby Buddy users shows that more than 87% (n=2254) of the mums reported that the app helps them take care of their mental well-being and a variety of mental health related terms are searched for within the app.

**Conclusion:** Baby Buddy is a strong example showing the effectiveness of using co-creation to design and implement a complex digital health intervention. The co-creation approach of Baby Buddy has underpinned the app's success in supporting public health priorities such as mental health and the initiatives of the charity have a strong potential to bridge inequalities in mental health in the United Kingdom.

**Keywords:** Baby Buddy app, Best Beginnings, birth, mental health films, parenting, pregnancy

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### **The co-production of an animation film to raise awareness of the perinatal mental health care pathways among commissioners and providers**

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**Background & Aim:** More than one in ten women develop a mental illness during pregnancy or within the first year postpartum. Untreated, this can have a devastating impact on the woman affected and her family, now and in generations to follow. There is good evidence that interventions in the perinatal period improve outcomes for women and families. This evidence is not always easy to access. In order to raise awareness and help commissioners and providers understand the complexity of the perinatal mental health care pathway, an animation film was developed in collaboration with a wide variety of health professionals, people with lived experience and the voluntary sector.

**Methodology:** A co-production workshop reviewing the pan London perinatal mental health service specification was held to develop the template for London. The event included health experts from mental health, maternity, social care, public health, commissioners and people with lived experiences. Delegates worked together using 'statements' to express what they want to see and experience within a service and provided information which focused on what matters most within the perinatal mental health care pathway. The information collated informed the service specification that went out for consultation and provided the template for commissioners enabling them to either develop a perinatal mental health service for their locality or build on their existing service to ensure women and their families in London get the right treatment from the right services at the right time.

**Results:** The animation film that will be presented promotes the perinatal mental health care pathway developed by the pan-London perinatal mental health network and endorsed by the co-clinical directors of the Maternity and Mental Health Strategic Clinical Networks. The pathway outlines the different strands that sit across the perinatal mental health life span. Five major strands are included: Maternity and neonatology, Maternal mental health psychiatry, Maternal mental health psychological therapies, Parent-infant mental health and Social care.

**Conclusion:** This animation film is an important addition to written documents, supporting commissioners improve perinatal care through enabling prevention, prediction, detection and treatment of perinatal mental health problems from the right services at the right time.

**Key words:** Animation film, commissioners, perinatal mental health care pathway

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### **Supporting infant mental health: An e-learning module developed for Health Education England's Healthcare Hub**

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**Background & Aim:** e-Learning for Health (e-LfH) is a Health Education England Program that has developed and delivered over 150 e-learning programs in partnership with the Department of Health policy teams and professional bodies. The Supporting Infant Mental Health e-learning session describes the importance of pregnancy and the intrauterine experience, and of the postnatal environment for the mental health of the infant through the first year of life. It is aimed at professionals working in the field of perinatal mental health with a particular focus on the outcome for the baby.

**Methodology:** The e-learning session lasts 30 minutes and uses self-assessments that help the participant check what he or she has learnt. A certificate is awarded on successful completion. The assessments are meant to help the learning process but do not have to be used and the answers are not seen by anyone else.

**Results:** By the end of this session the participant will be able to: 1) Explain the importance of gestation for a healthy outcome for the infant, 2) Describe what the mental health of well infants looks like: behavior and physiology, 3) Explain which infants might be vulnerable to problems with their mental health: maternal, paternal and infant risk factors, and 4) Describe the role played by the caregiver in supporting the infants mental health

**Conclusion:** The e-learning programs enhance traditional learning, support existing teaching methods and provide a valuable resource which can be accessed by anyone, including parents, anytime, anywhere.

**Key words:** e-learning program, Health Education England, perinatal mental health, professionals, supporting infant mental health

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### **Perinatal mental health simulation: A novel and effective way of training a multidisciplinary audience to improve inter-professional working**

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**Background & Aim:** Numerous documents have highlighted the need for more training in perinatal mental healthcare including the last National Institute for Health and Care Excellence Guidelines. This field is also one where effective multidisciplinary collaboration is imperative to achieve the best outcomes for patients. In the UK, opportunities for interprofessional education (IPE) in perinatal mental health have been very limited with a tendency towards "silo training" despite evidence suggesting that by training multidisciplinary teams together, individuals are more likely to take advantage of the knowledge and skills of their colleagues in clinical practice - an approach endorsed by the World Health Organization. Simulation training has been widely and effectively used in the acute health sector but underused in psychiatry. We designed and delivered a novel interprofessional simulation course using evidence-based IPE principles to address this unmet need.

**Methodology:** The course was designed to suit the educational needs of a wide range of professionals including midwives, health visitors, psychiatrists, obstetricians, GPs and psychiatric nurses. Participants undertake a number of simulated scenarios focusing on different aspects of the assessment and management of women with perinatal mental health difficulties with particular emphasis on multidisciplinary working. A structured debrief model facilitates learning around a range of technical and non-technical skills. Pre- and post-course 30-item self-report questionnaires were administered measuring knowledge, attitudes and confidence. Written and verbal feedback was obtained to qualitatively assess the courses impact.

**Results:** Data was analyzed from the first eight courses (n=82). There were statistically significant improvements in pooled knowledge, attitudes and confidence scores (p=.001) with large effect sizes of .30, .31, and .64 respectively. The qualitative data demonstrated that participants successfully worked towards achieving the interprofessional learning outcomes of the course in five main domains: Inter-professional collaboration; multidisciplinary working; communication; reflection; knowledge & confidence.

**Conclusion:** The results demonstrate that we have successfully developed a novel training course to effectively improve multidisciplinary working in this field. We hope to further evaluate the impact on patient outcomes in clinical practice.

**Key words:** Inter-professional learning, multidisciplinary team working, perinatal mental health simulation, structured debriefing

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**ISPOG symposium: Comprehensive bio-psycho-social perinatal care when pregnancy is untimely or burdensome**

**Women's preferences for comprehensive psychosocial pregnancy advice and abortion care: Evidence and practice**

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**Background & Aim:** Unintended pregnancy remains common worldwide. The quality of care is an important component of women's emotional adjustment. The aim of this paper was to review the evidence for women's views about best practice pregnancy advice and abortion care, assess clinical practice standards and guidelines, and discuss implications for training and practice.

**Methodology:** A review of the international, peer-reviewed literature reporting women's views about best practice in pregnancy advice and abortion care was conducted; data were extracted and collated, the quality of the evidence was assessed, and thematic analysis was used to derive best practice principles of care. Existing, English-language, publicly-available standards of practice and clinical practice guidelines for abortion were collected and critically reviewed. The degree to which the best practice principles of care identified by women are included in clinical practice standards and guidelines was recorded.

**Results:** Psychologically-informed as well as technically-skilled care for pregnancy advice and abortion are regarded by women as essential. Timely access, and good provider-consumer communication in a non-judgmental, empathic framework enhances women's wellbeing and has implications for service delivery and clinical practice. Models of care that recognize and manage the impact of stigma, social hostility to abortion, and women's prior experience of trauma are emerging. Internationally-accepted standards of practice for pregnancy advice are limited. There is more guidance available for best practice abortion care, but there is limited inclusion of women's best practice principles. The best practice principles have implications for clinicians' attitudes and values, capacity for empathic communication, professional support, and for training and quality assessment.

**Conclusion:** All professionals involved in the care of women experiencing unintended pregnancy or abortion should have opportunities for training that involves clarification of personal values and development of communication skills, and ongoing availability of multidisciplinary professional peer support. Internationally-recognized quality indicators to enable rigorous assessment of pregnancy advice and abortion services are required.

**Keywords:** abortion, pregnancy advice, biopsychosocial, women's views

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**When pregnancy is at an early age: Comprehensive bio-psycho-social care for pregnancy teenagers**

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**Background & Aim:** Teenage birth rate varies considerably from one nation to another depending on the respective cultural conceptions and socioeconomic

conditions. In countries in which abortion is legally available the majority of adolescents opt for termination of pregnancy and only few proceed with the pregnancy and give birth. Teenage pregnancies have certain physiological and psychological characteristics that carry specific attendant risks. The care for this group of pregnant women is challenging and benefits from an approach that is well-adapted to the individual circumstances of the woman

**Methodology:** In the first part of the talk the specific features of teenage pregnancies will be discussed based on a review of the literature and illustrated by case examples. The second part of the talk will be dedicated to the presentation of an experience-based model of care for pregnant teenagers and to a discussion on how the elements of this model apply or would have to be adapted for in settings other than those in a European country such as Switzerland.

**Results:** In order to guarantee that the specific needs of pregnant adolescents are met, a low-threshold access to counselling characterized by openness and neutrality with regard to outcome is crucial. The counselling should aim at facilitating a self-directed decision based on comprehensive information and confrontation with the reality of early parenthood and childcare.

**Conclusion:** Antenatal care for adolescents who decide to go on with their pregnancy is ideally provided by a stable team of health-professionals with the specific medical and psychological needs of pregnant teenagers taken into account. Whenever possible an early set-up of an interdisciplinary network is recommended

**Keywords:** teenage, pregnancy, biopsychosocial, multidisciplinary

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**Implementing a routine antenatal depression screening and psychosocial assessment program in a private obstetric setting in Australia: Learnings and challenges**

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**Background & Aim:** Perinatal mental health morbidity is a major cause of concern within obstetric care, with high prevalence of antenatal and postnatal mental health disorders. Early identification and treatment are the best strategy to manage and prevent, if possible. Various international and national including recent Australian perinatal mental health guidelines recommend universal depression screening and psychosocial assessment, in all maternity settings. Under new measures being adopted by the national Australian Government, women will have access to free mental health assessments during and after pregnancy, which is anticipated to improve perinatal mental health outcomes. Implementation of routine screening has already occurred in many public hospitals, however, routine screening in the private maternity sector in Australia has been suboptimal

**Methodology:** A retrospective medical records audit of consecutive women having a routine psychosocial assessment (Antenatal Risk Questionnaire) and depression screening (Edinburgh Postnatal Depression Scale) was conducted. Women were invited to complete a feedback survey about their experience of receiving comprehensive psychosocial care, and semi-structured interviews were conducted with health professionals involved in the program.

**Results:** In total, 455 medical records were audited and 101 women completed the feedback survey. The prevalence and types of risk factors endorsed by women in the sample was largely consistent with the available published evidence from public and private maternity settings in Australia. The depression screening and psychosocial risk assessment was high was generally acceptable to women. Analysis of the interview data revealed the attitudes of health care providers to the new service and offered the opportunity to understand how to overcome barriers.

**Conclusion:** The presentation will focus on the successful implementation of routine depression screening and psychosocial assessment in a regional private maternity setting in Australia, with particular emphasis on challenges and learnings during implementation.

**Keywords:** antenatal mental health screening, mental health, depression, psychosocial assessment

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**Improving care for perinatal mood and anxiety disorders in the US and India: Progress, challenges, and potential solutions**

**How and when to screen for symptoms of postpartum depression:**

**Results from a prospective cohort of pregnant rural Indian women**  
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**Background and Aims:** Postpartum depression (PPD) is a common but under-detected and under-treated health issue affecting new mothers worldwide and is associated with poor infant growth. There is a need to develop a culturally relevant strategy to identify women at-risk for developing symptoms of PPD. Our aim was to assess mental health trajectories of women during the peripartum period and evaluate the performance of questionnaire-based instruments to predict symptoms of PPD.

**Methodology:** 218 Indian women from rural regions of central Gujarat, India were enrolled in this prospective cohort study during the first trimester of their pregnancy. Mental health status was assessed during each trimester and at 2-weeks, 3-months, and 6-months postpartum using Edinburgh Postnatal Depression Scale (EPDS), Self-reporting Questionnaire-20 (SRQ-20), and General Anxiety Disorder-7 (GAD-7). Additionally, information about sociodemographic characteristics and psychosocial factors was collected using culturally-adapted standardized questionnaires. We also compared EPDS, SRQ-20, GAD-7 to the gold-standard Mini International Neuropsychiatric Interview and found that EPDS performed the best in identifying perinatal mood disorders. Therefore, we considered participants to screen positive for symptoms of PPD if they had an EPDS score of 11 or higher at either 3-month or 6-month postpartum.

**Results:** 141 of the 218 enrolled participants were retained through the postpartum period and screened for PPD symptoms; one-third (46, 32.6%) were found to be positive. The best performance was observed at the third-trimester screening, when roughly 2 out of every 3 women with EPDS score  $\geq 11$  later also screened positive for PPD. Further analyses revealed that supplementing third-trimester EPDS screening with information about female autonomy, caste, age, previous pregnancies, and anemia status augmented the area-under-the-curve of screening performance from 0.77 to 0.90.

**Conclusion:** There is a high prevalence of PPD among rural Indian women and administering a brief questionnaire during 3<sup>rd</sup> trimester about sociodemographic and psychosocial factors along with EPDS instrument can help identify women at-risk for developing PPD. This enhanced screening method may be particularly relevant for low resource setting with limited mental health services to avoid overburdening the providers and the system.

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**Perinatal depression and anxiety – An interdisciplinary team facilitates implementation of the Council on Patient Safety in Women's Health Care Patient Safety Bundle**

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**Background and aims:** Recognizing that perinatal depression and anxiety are common, associated with significant negative consequences, and are under-diagnosed and under-treated, the Council on Patient Safety in

Women's Health Care (The Council) developed a relevant patient safety bundle. The bundle broadly informs evidence-based approaches that together seek to integrate mental health and obstetric care. However, it does not provide critically needed real-world practice setting, implementation guidance – guidance required given implementation challenges presented by needing to span inpatient and ambulatory care environments, and to integrate obstetric and non-obstetric providers and processes. The aim of this presentation is to describe the safety bundle, and the interdisciplinary group, process and products developed to facilitate its implementation.

**Methodology:** The American College of Obstetricians and Gynecologists convened an expert work group composed of specialists in women's health, obstetrics, psychiatry, psychology, nursing, social work, and public health. The group was charged with creating an implementation playbook designed to facilitate bundle uptake. To meet practices and providers where they are, with the goal of assisting in furthering efforts to integrate obstetric and mental health care, the group adapted a rigorous research self-assessment tool originally designed to inform practice-level implementation of stepped depression care in Ob/Gyn settings.

**Results:** The self-assessment tool queries: (1) public-facing awareness and educational resources, (2) policies and procedures for detection, assessment, treatment, referral and follow-up, (3) providers and staff knowledge, confidence and skills, and (4) understanding of financial and other incentives to sustainability. Based on self-assessment results, recommendations are made to either existing vetted resources and/or to guidelines for establishing next steps (e.g.; stage-based response, community-based and emergency referral protocols).

**Conclusion:** Safety bundles cannot improve care delivery unless they are implemented. Given inherent and predictable challenges to implementing The Council's perinatal depression and anxiety safety bundle, it is critical to address and ease barriers to implementation. Self-assessment tools paired with recommendations and vetted resources allows practices to customize implementation to their specific environments and practice considerations, stage of readiness, and needs, through discrete actionable steps that will ultimately sum to advance the holistic care we provide to women experiencing perinatal mental health crises.

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**Massachusetts Child Psychiatry Access Program (MCPAP) for Moms: Utilization and Quality Assessment**

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**Background and aims:** Perinatal mental health and substance use disorders are widespread and undertreated. The aim of this presentation is to describe the utilization and quality assessment of a low-cost population-based program to help providers address mental health and substance use disorders among pregnant and postpartum women, the Massachusetts Child Psychiatry Access Program for Moms (MCPAP for Moms).

**Methodology:** MCPAP for Moms builds providers' capacity to address perinatal mental health and substance use disorders through: 1) trainings and toolkits on depression screening, assessment and treatment; 2) telephonic access to perinatal psychiatric consultation for providers serving pregnant and postpartum women; and, 3) resource and referrals to link women with individual psychotherapy and support groups. Clinical encounter data was collected during telephone consultations, surveys were administered to obstetric providers, and focus groups were conducted with providers and staff from enrolled obstetric practices. In-depth interviews were conducted with patients served by the practices that participated in the focus groups.

**Results:** In the first 3.5 years, MCPAP for Moms enrolled 145 obstetric practices, conducted 145 trainings for 1174 providers and served 3699 women. Of telephone consultations provided, 42% were with obstetric

providers/midwives and 16% with psychiatrists. Providers perceived MCPAP for Moms facilitates providers detecting and addressing depression and women disclosing symptoms, seeking help, and initiating treatment. Obstetric practices reported that they need additional support to further improve depression care and more proactively address depression. **Conclusion:** The high volume of encounters, sustained utilization over 3.5 years and qualitative themes identified from providers and patients demonstrate that MCPAP for Moms is a feasible, acceptable, and sustainable approach to increasing access to evidence-based treatments for perinatal mental health and substance use disorders on a population-based level.

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#### **Rationale and design of Peer Engagement to Enhance Resiliency (PEER) program to improve preconception mental health among Indian adolescents**

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**Background:** Greater understanding of the link between preconception mental health and perinatal depression has spurred a call for action to develop programs that build resiliency during adolescence, an age when initial symptoms of depression typically arise. A recent cohort study in Australia of 1000 adolescent females showed that mental illness during adolescence was associated with 8-fold increased odds of postpartum depression. Previous studies among Indian women have identified intimate partner violence, lack of autonomy, and experiences of discrimination as highly prevalent across different socioeconomic strata and important contributors to mental illness. Therefore, we aim to implement a program focused on building resiliency and self-efficacy among school-aged adolescent females to cope with distress.

**Methodology:** PEER program will use principles of community-based participatory research and includes separate focus groups of students, teachers, and parents. The knowledge acquired from the focus groups will be discussed in community forums and synthesized into discrete modules using a narrative communication technique called digital storytelling. This technique uses powerful stories from community members about their personal experiences related to a particular topic and is packaged to cover the breadth of issues identified by the focus groups. The modules will feature peer-leaders and be disseminated to school-going adolescents at the start of the academic year.

**Results:** The efficacy of PEER program will be evaluated using standardized questionnaires that assess adolescents' mental resilience and awareness about reproductive health. Responses from adolescents attending participating schools will be compared to age-matched adolescents attending control schools. A randomized-cluster trial will not be performed because there might be differential interest from schools or peer-leaders and our primary objective is to assess whether a PEER program is feasible among the rural Indian community.

**Conclusion:** Adolescence is a critical period for the development of positive coping strategies and the PEER program provides an innovative approach to prepare Indian females with the unique life-cycle risks they face. The potential of PEER program to improve preconception mental health holds promise to not only prevent postpartum depression but also avert adverse maternal and child-health outcomes that have been shown to be independently linked with preconception mental illness.

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#### **Implementing population-based perinatal depression programs in real-world obstetric settings in the US and India**

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**Background and aims:** Despite increased contact with medical care through obstetrical providers, the majority of women with perinatal mood and anxiety disorders do not receive treatment due to multi-level barriers. The aim of this presentation is to: 1) coalesce the findings from presentations 1-4 including barriers and facilitators to implementing low cost population-based programs in diverse real-world settings; 2) discuss implications for building the capacity to detect, assess, treat and/or refer women with depression or other mental health concerns in the US and other LMICs; and, 3) identify policy implications and propose minimum clinical standards.

**Methodology:** In this presentation we will present unique perspectives from an American perinatal psychiatrist (Byatt) and Ob/Gyn (Moore Simas) as well as Indian psychiatrists (Prabhakaran, Varma), community-medicine specialist (Raithatha), and pediatrician (Nimbalkar). We will discuss unique challenges to implementation and opportunities for leveraging existing models in their own setting.

**Results:** Even when screened, most women in the US do not participate in treatment. Women in India experience additional barriers, including lack of screening mechanisms, inadequate prenatal care, and stigma surrounding mental health, making access to treatment even more difficult. MCPAP for Moms offers a low-cost approach that shows promise for being transportable to other countries. Similarly, PEER program holds promise to prevent perinatal mental illness but requires efficacy evaluation before it is adopted in different settings.

**Conclusion:** Improving mental health care and access under the challenging circumstances in the US and India requires innovative approaches that are practical, scalable, and sustainable. Implementation of MCPAP for Moms-type programs would need to be adapted and tailored to address the unique environments and needs of other countries. The MCPAP for Moms and PEER are scalable and sustainable programs that have the potential to integrate within existing systems in US, India, and other countries.

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#### **Self-harm, near-miss deaths and perinatal mental health**

##### **Recognition and response to life-threatening events in the perinatal period**

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**Background and aims:** Mental illnesses are a leading cause of deaths in pregnancy and the year after birth (the perinatal period) within high-income countries. A near miss approach can be a valuable method for studying the processes in place for recognising and responding to clinical deterioration in life-threatening illnesses. However, maternal mental illness is largely absent from this research. The overall objectives of this study are to explore barriers to detection and response of near miss events in perinatal mental healthcare.

**Methods:** A qualitative study utilising in-depth semi-structured interviews with 15 healthcare professionals (HCP) from psychiatry, maternity and primary care backgrounds, was conducted to explore barriers to detection, response and escalation of mental health related life-threatening events among women with perinatal mental illness. A thematic analysis

approach drawing on Systems Theories to delineate differing perspectives between clinical disciplines was adopted.

**Results:** Three overarching themes were identified: Recognition of Severity, Communication of Risk and Lack of Resources for Treatment. Differing perspectives of mental illness severity, strongly embedded within HCP experiences and professional culture, influenced how life-threatening situations among women with perinatal mental illness were described, recognised and communicated between teams. Under-resourced mental health service provision, particularly within emergency and specialist perinatal mental health services, unclear thresholds for escalating care and poor infrastructure for sharing information contributed to delays in a timely response to crisis situations. Reluctance to prescribe medication or admit women to psychiatric hospital, stigma, and unattended appointments further contributed to missed opportunities for treatment.

**Conclusions:** Several complex and inter-related healthcare barriers to detection, response and escalation of care for potentially life-threatening situations among women with perinatal mental illness exist. Focusing on how differences in organisational and professional culture contribute to the recognition of severe mental illness and inter-disciplinary communication may help facilitate clearer co-ordination between teams.

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**Breaking the cycle of intergenerational trauma: From risk to intervention  
Biological sensitivity to early sexual abuse and relevance for maternal antenatal mental health.**

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**Abstract:** There is increasing evidence that childhood maltreatment associates with maternal perinatal mental health, however there are marked inter-individual differences in the effects of abuse on symptoms of anxiety in pregnancy. Exposure to child maltreatment predicts an earlier age of menarche, which may index individual-level biological sensitivity to maltreatment exposure. We hypothesized that women exposed to abuse, who report an earlier age of menarche, would show higher levels of prenatal anxiety relative to other maltreated, and non-maltreated, women.

**Methods:** We focus our analysis on the Avon Longitudinal Cohort of Parents and Children. Women were recruited in pregnancy with an assessment of maternal anxiety at 32 weeks gestational age. Information on exposure to different categories of child maltreatment were collected at 32 weeks gestational age and combined to form a binary exposure variable.

**Results:** Women exposed to childhood maltreatment reported an earlier age of menarche ( $t=3.28$ ,  $p<0.001$ ) and were significantly more likely to report high symptoms of prenatal anxiety (top 15% of scores) than non-maltreated women (OR: 1.74,  $p<0.001$ ). Stratified analyses revealed that women who reported an earlier age at menarche and a history of maltreatment were at the highest risk for elevated symptoms of prenatal anxiety (OR:2.08,  $p<0.001$ ).

**Conclusions:** Our findings document the profound impact of child maltreatment on maternal antenatal mental health. Our data suggest that maternal age of menarche provides a clinically relevant index of inter-individual differences in sensitivity to early adversity. Such findings may help better identify, and treat, those women at-risk of adverse mental health outcomes in pregnancy.

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**Parental childhood abuse and neonatal HPA axis function: Mechanisms of risk transmission**

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**Introduction:** Parental exposure to child abuse may have transgenerational effects, with offspring of abuse victims showing dysfunctional

neuroendocrine profiles. Although the time periods and mechanisms of risk transmission remain unclear, dysregulated maternal cortisol levels during pregnancy and poor behavioral regulation in neonates may be involved. Infants born to abused women show blunted cortisol levels and poor birth outcomes – male infants may be particularly responsive to maternal HPA axis dysregulation. Therefore, the current study investigates, for the first time, whether maternal HPA axis functioning in pregnancy and neonate behavior post-birth mediate the association between maternal childhood abuse and neonate HPA axis function. A further aim was to examine the role of infant gender in the transmission of risk.

**Methods:** Maternal childhood abuse exposure was assessed retrospectively using the Childhood Experience of Care and Abuse questionnaire (abuse present:  $n=70$ , 38 males; abuse absent:  $n=81$ , 46 males). At 25 weeks gestation maternal cortisol awakening response (CAR) was computed from cortisol samples at wake-up, wake +15 min, wake +30 min and wake +60 min. At 6 days post-delivery neonatal behavioral adjustment was examined using the Neonatal Behavioral Assessment Scale and cortisol was measured before (pre) and immediately after (post).

**Results:** Using regression-based path analysis (controlling for socio-demographic functioning, maternal depression and birth outcomes) neonatal cortisol was associated with maternal childhood abuse (but not maternal depression).

**Conclusion:** These findings link maternal childhood abuse exposure with neonatal stress physiology and suggest differential pathways of intergenerational transmission for males and females. Our results also have implications for understanding the relative vulnerability of males to developmental problems which may originate in the uterine environment.

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**Insightfulness and reflective capacity among mothers with histories of childhood maltreatment is associated with postpartum parenting**  
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**Background:** While prior research established links between parental insightfulness and sensitive parenting, less is known regarding these associations in samples of women with childhood maltreatment histories, and this is the goal of our study.

**Methodology:** Participants ( $n=152$  mother-infant dyads) come from a parent study (MACY;  $N=268$ ;) that over-selected for mothers' childhood maltreatment exposure. MACY collected data at 4, 6, 12, 15 and 18 months postpartum. Here we utilize 6 and 15-months data. At 6-months mothers underwent the Insightfulness Assessment (IA) Interview; at 6 and 15 months we collected mother-child interactions.

The IA was scored for categories and dimensional scale scores. The scale scores yielded a 3-factor solution: a "positive" IA factor (complexity, insight, acceptance, flexibility, richness and coherence), a "negative" IA factor (shift of focus, concern, lack of separateness), and a separate "hostility" score. Mother-child interactions were rated using the MACY Infant/Toddler-Parent Coding System (MIPCS; Early, Muzik, & Beeghly, 2009). A composite positive parenting variable ( $\alpha=.84$ ) was created based on maternal Behavioral Sensitivity, Affect Sensitivity, Flexibility, Engagement, Warmth, & Positive Affect. Structural equation modeling analyses were used to test associations between maternal characteristics (demographics, maltreatment history, psychopathology), insightfulness, and parenting. FIML and MPLUS were used to estimate models. RMSEA and CFI indicated good model fit.

**Results:** SEM analyses showed distinct pathways for the positive, negative and hostility IA factors. Maternal educational risk was related to the IA factors and positive parenting at 6 and 15 months, but trauma and psychopathology were not. The positive IA factor predicted maternal positive parenting at 6 months, and the IA negative factor predicted positive parenting at 15 months, even controlling for education risk.

**Conclusions:** Insightfulness shows expected associations with parenting in an at-risk trauma sample. Specifically, insightfulness predicts positive parenting qualities both concurrently and longitudinally. Results underscore the value of interventions targeting insightfulness in postpartum mothers.

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#### **Becoming a father in the context of domestic violence: Hopes and challenges**

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**Background:** Domestic violence and abuse (DVA) in pregnancy is a significant public health issue, with poor physical and mental health outcomes for both women and children. Children who witness or experience abuse are at increased risk of mental illness as well as both future victimisation and perpetration of abuse. The 'For Baby's Sake' programme is a whole family approach that addresses the cycles of DVA and seeks to improve mental health and parent child attachment. Couples with identified DVA (where the male partner is the main perpetrator) sign up to the programme during pregnancy and receive intensive therapeutic support throughout the perinatal period. The programme is currently being piloted in two sites in the UK and evaluated by King's College London. Qualitative data on men's experience of becoming fathers in the context of participating in this innovative programme is essential to understanding the mechanisms of change and key components of the intervention, which can contribute to breaking the cycles of intergenerational violence and abuse.

**Aims:** To explore the experience of becoming a father in a sample of men engaging in a perinatal program to reduce violence.

**Methods:** Men who signed up to the *For Baby's Sake* program and agreed to being contacted were invited to participate in the study between July 2017 and April 2018. Those who consented were interviewed by the researcher about their experience of becoming a father, including challenges, hopes and how they managed change. Interviews were audio recorded and transcribed verbatim. Data was analyzed using thematic analysis.

**Results:** Eleven men were interviewed postnatally and the sample included both first time and experienced fathers. Themes include managing change, negotiating relationships, and finding ways to connect. This presentation will discuss the implications of these themes for whole family interventions.

**Conclusions:** Understanding the experiences of new fathers who are seeking help to change abusive behaviors and improve their relationships is important in order to target interventions effectively and engage hard to reach groups.

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#### **Perinatal interventions for mothers and fathers who are survivors of childhood sexual abuse**

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**Background:** Childhood sexual abuse (CSA) is a worldwide problem which can be distinguished from other forms of abuse by the particularly adverse psychological sequelae that survivors experience. A history of CSA can impact the childbearing experience of mothers and fathers; with

far-reaching and distinct consequences on pregnancy, labor, and the early postnatal period. Nonetheless, while the perinatal period offers huge opportunity for intervention and hope; traditional trauma models of intervention may be unable to effectively address the unique needs of CSA survivors during the perinatal period. Thus, there is the need for research to identify perinatal trauma informed programs for this population.

**Aims:** To systematically identify and describe perinatal psychosocial interventions for mothers and fathers who are survivors of CSA.

**Methods:** Publications dating from 1970 to June 2016 were searched using Medline, Maternity and Infant Health, PsychINFO, PsychArticles, PubMed and the International Bibliography of the Social Sciences (IBSS). Inclusion criteria were: (i) psychosocial interventions targeted towards supporting parents (mothers and/or fathers) not confined to, but taking place at some point within the perinatal period (defined as the beginning of pregnancy until 12 months post-partum); (ii) specific assessment/screen for CSA or any other abuse type examined alongside CSA; (iii) monitored changes in one or more of the following: parental mental health, parent-child interaction, child development and public health outcomes.

**Results:** There were no perinatal interventions that considered the needs of survivor fathers. Sixteen publications on 9 psychosocial perinatal interventions for CSA survivor mothers were identified. However, no sub-analyses specific to CSA survivors were reported. Hence, the intervention models and outcome domains identified and described in this study are not observed exclusively in CSA survivors. Trauma-specific perinatal interventions drew from a range of theoretical models and varied widely in format. Generally, interventions were associated with improvements in maternal depression, anxiety and PTSD, parenting competence, infant attachment security and positive public health outcomes (reduced subsequent childbearing, timely pediatric and immunization checks). They were safe and feasible to implement, acceptable to parents and therapist; and therapists were able to implement protocols with adequate fidelity.

**Conclusions:** The available interventions offer a promising start in identifying and catering for a range of needs. However, before these interventions can be safely employed, RCT evidence is required demonstrating their safety and efficacy with this population sub-group. Furthermore, current data is hampered by small sample size, inconsistent reporting of CSA rates and outcome measures, scarcity of observational data and longer-term follow-up. Intervention modifications are proposed for CSA survivors in view of their unique childbearing experiences.

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#### **Perinatal e-mental health support: Evidence and challenges in translation to practice**

#### **Perinatal e-mental health support: Evidence and challenges in translation to practice**

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**Background & Aim:** Fewer than 50% of postnatally depressed women seek help and left untreated, postnatal depression (PND) can have significant deleterious effects (e.g., maternal mental health and child development). Internet interventions for postnatal depression (PND) can potentially improve treatment uptake as they are accessible, convenient, and affordable. However, few Internet-based treatments for PND are proven to be suitable for more severe cases with a clinical diagnosis of depression. Even rarer are such programs that have been both evaluated in rigorous research settings and successfully rolled out into real-world

practice. We developed, built and tested the efficacy of a 6-session cognitive behavioral therapy (CBT) Internet intervention (the MumMoodBooster program) for perinatal women before seeing it translated as a government funded national resource, free to all Australian women.

**Methodology:** The MumMoodBooster intervention was developed and evaluated over 6 years through an iterative process. Women were first surveyed on the content, perceived benefits and barriers and we then conducted formative research using focus groups followed by systematic usability testing of a prototype. We completed a feasibility study, n=53, a parallel 2-group randomized controlled trial, n=43, and a 3-arm study comparing online CBT treatment to face-to-face therapy and treatment as usual. Since 2017, a SMS-supported version of MumMoodBooster has been available nationally on the MumSpace website in Australia to all perinatal women at no cost to individual users. A telephone coached and SMS supported version is available for both a pregnancy and postnatal version.

**Results:** In our research trials we included only women with diagnosed depressive disorders and, 80% of those who received the Internet treatment achieved clinical remission (a 4-fold superiority over treatment as usual). Treatment adherence was excellent. Although translation into the real-world setting, has shown poorer adherence to SMS-supported version of MumMoodBooster by users, the clinical gains in depression symptoms are similar across an 8-week period (approximate halving of PHQ-9 scores).

**Conclusion:** Results suggest that our Internet CBT program, MumMoodBooster, is an effective treatment option for women clinically diagnosed with PND and remains effective when translated into real-world practice. There remain very few well-validated specialized online psychological treatments for women clinically diagnosed with PND.

**Keywords:** Perinatal depression, online treatment, RCT

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### Regaining MUMentum: Findings from two randomized controlled trials evaluating brief internet cognitive behavioral therapy for perinatal distress, anxiety, and depression

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**Background & Aim:** Internet-delivered treatments, specifically cognitive behavioral therapy (CBT) have the potential to improve help-seeking behaviors and treatment accessibility for women in the perinatal period. To date internet-delivered CBT has demonstrated preliminary effectiveness in treating perinatal depression, yet no interventions have specifically targeted the reduction of perinatal anxiety, despite anxiety being highly prevalent and comorbid with depression. The aim of this study was to evaluate the efficacy and acceptability of the MUMentum programs in reducing anxiety and depression, compared with usual care. MUMentum is based on the treatment principles of transdiagnostic CBT and consists of two brief courses tailored specifically to women experiencing anxiety and depression during pregnancy and postpartum.

**Methodology:** Participants were randomized to the treatment group or treatment-as-usual control group and completed the program over a period of 4-6 weeks. The efficacy of each program in reducing symptom severity; its effects on other mother-infant outcome (e.g. attachment, parenting confidence) and how this program aims to be used in the future will be discussed from the perspective of the treating clinician.

**Results:** Preliminary results suggest that more than 75% of participants adhere to treatment and demonstrate large and superior improvements in symptom severity, compared to the control group.

**Conclusion:** As this brief self-guided intervention does not require mental health specialist supervision it has the potential to be easily disseminated to large numbers of perinatal women screening positive for anxiety, depression, and distress symptoms in primary care.

**Keywords:** Internet, CBT, anxiety, depression, RCT

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### Online and mobile psychoeducation initiatives to prevent postnatal mental health problems: Research and evaluation

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**Background & Aim:** Primary care providers occupy a central position for the promotion of mental health and prevention of mental health problems in the postpartum period. Online platforms are a promising means to overcome geographical and other barriers to uptake of mental health promotion. There is abundant pregnancy and parenting advice available online and via mobile apps but is it of variable quality. What Were We Thinking! (WWWT) is an evidence-based gender-informed, psychoeducational program for universal uptake by couples to prevent postnatal common mental disorders. There is cluster randomized controlled trial evidence that the face-to-face delivery of WWWT by Maternal Child and Family Health nurses prevents mild to moderate mental health problems among women who have given birth to a first baby. The aim is to describe WWWT, and the development, preliminary evaluation, and practical applications of the professionally-moderated WWWT blog and the free- download WWWT Smartphone app, funded under the Australian Government e-mental health (Teleweb) initiative, to support the delivery and increase reach of WWWT.

**Methodology:** Development of the WWWT blog rests on evidence that writing about personal experiences of illness or adversity and having access to other people's stories is reassuring, and that reading stories about how others have solved their problems combined with expert guidance assists learning and reduces distress. The WWWT mobile app is based on the WWWT content in an interactive platform using text, videos, and quizzes with instant tailored feedback. It provides opportunities to acquire new knowledge and skills and to implement and monitor behavior change.

**Results:** Preliminary evaluation evidence suggests that these online platforms increase reach, are acceptable, encourage social participation, optimize peer and professional support, and contribute to the prevention of mental health problems during early parenting.

**Conclusion:** Online self-help resources are a promising means to increase the reach of health promotion programs intended for universal uptake. These resources can support clinical practice, and fill a gap in accessibility to peer group support, expert advice, and evidence-based strategies to prevent postpartum mental health problems.

**Keywords:** e-mental health, m-mental health; smartphone app; moderated blog; evaluation

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### Challenges of iCBT in research and clinical practice: A clinician's perspective

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**Background & Aim:** Convenient and accessible, evidence-based interventions that are tailored to the unique issues and challenges of the

perinatal period are required in order to improve help-seeking amongst mothers. Yet, delivering treatment online or via mobile app in high-risk populations requires careful consideration and appropriate safety protocols.

**Methodology:** Two randomized controlled trials were conducted to evaluate the efficacy and acceptability of the MUMentum Programs in reducing distress, anxiety, and depressive symptom severity during pregnancy and the postpartum period.

**Results:** The process of conducting research in this population (e.g. recruitment, risk management, adherence) and how this program aims to be used in the future will be discussed from the perspective of the treating clinician.

**Conclusion:** This presentation will provide the audience with insights into conducting clinical research into online treatment programs for perinatal women, managing suicidal risk, and how e-mental health interventions can be implemented into everyday clinical practice.

**Keywords:** e-mental health, internet, treatment, clinician, anxiety, depression

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### Complexity of childbirth

#### Exploring the psychological experiences of physiological childbirth: A meta synthesis

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**Background & Aim:** Childbirth is a profound psychological experience that has a short-term and long-term impact on women. Meeting the emotional and psychosocial needs of laboring women requires a deeper understanding of the psychological process of childbirth. The aim is to synthesize qualitative studies on women's psychological experiences of physiological childbirth.

**Methodology:** Studies exploring women's physiological experiences of birth using qualitative and mixed methods, which include a qualitative element, were eligible. MEDLINE, CINAHL, PsycINFO, PsycARTICLES, SocINDEX and Psychology and Behavioral Sciences Collection databases were searched as well as reference lists and contacting authors. Quality assessment was done independently using the Critical Appraisal Skills Programme (CASP) and Consolidated criteria for Reporting Qualitative studies (COREQ) checklists. Studies were synthesized using techniques of meta-ethnography.

**Results:** Eight studies involving 94 women were included. A line of argument developed that demonstrated the empowering journey of giving birth encompassing the various emotions, thoughts and behaviors that women experience during birth.

**Conclusion:** Giving birth physiologically is a psychological experience that generates a sense of empowerment. The benefits of this process can be maximized through physical, emotional and social

support for women. Health care professionals need to take cognizance of the empowering effects of the psychological experience of physiological childbirth. Further research to validate the results from this study is necessary.

**Keywords:** physiological birth, meta-ethnography, Critical Appraisal Skills Programme

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#### Anonymous birth in the prevention of neonaticide: Perspectives of birth mothers

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**Background & Aim:** In 2002 the Austrian law for anonymous birth was introduced. Little is known about the women and the adopted children. As hypothesized, anonymous birth affects both women giving birth and children who are given up for adoption. For the women giving birth, there are few studies till date that have investigated their motives, mental health and psychosocial background. The results here, should assist in optimizing the existing support and counseling services.

**Methodology:** The study design includes a qualitative and a quantitative part. Semi-structured interviews will be conducted and a specially developed questionnaire will be used during pregnancy or after the women have given birth.

**Results:** Since the implementation of anonymous birth around 640 women chose to deliver anonymously. Areas with well-established counseling services have a higher rate. Preliminary data regarding the women giving birth show that there is a high rate of trauma and abuse, mental instability as well as pregnancy negation. Cases of fetal abuse occurred.

**Conclusion:** Every year around 50 women deliver anonymously in Austria. This preventative measure is well established and successful in prevention of neonaticides. Women who chose this option are in high need of psychosocial assistance, which they usually decline to accept.

**Keywords:** anonymous birth, pregnancy negation, fetal abuse

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#### Repeated neonaticide: Differences and similarities to single neonaticide events

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**Background & Aim:** Neonaticide, while a crime of very low prevalence, remains an issue that requires further study. This pilot-study aims to identify differences between single and repeat perpetrators of filicide by using register-based data from Austria and Finland.

**Methodology:** The study covered all recorded filicide cases between 1995 and 2005, inclusive. There were 28 victims and 23 perpetrators—20 single perpetrators and 3 repeat perpetrators.

**Results:** The study also found that low levels of awareness about the pregnancy within the perpetrator's circle remains an important risk factor, especially for repeat perpetrators. This study posits that the quality of the interpersonal relationships these women have may be affected by their own mental health issues and life experience and vice versa. Added to this the difficulties they encounter during pregnancy generate scenarios with a higher risk of neonaticide. One unexpected finding was the high use of contraception within the repeat group.

**Conclusion:** Single and repeat events share more similarities than differences, specially the negation of pregnancy by the women and her social surroundings

**Keywords:** filicide, child murder, neonaticide, repeated neonaticide  
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***Celebrating Prof Vivette Glover – A pioneer in perinatal psychobiology, and charting new frontiers in perinatal mental health***

**Children's social communication and attention difficulties are predicted from maternal prenatal anxiety and infection**

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**Background:** There is growing interest in the role of prenatal exposures on child neurodevelopment. Two leading exposures are maternal anxiety and infection. We extend and integrate these separate lines of study in a large prospective longitudinal study of child neurodevelopmental outcomes at age 8 years.

**Methods:** Data are based on the ALSPAC cohort; prenatal maternal anxiety was assessed from self-report questionnaire; prenatal infection was derived from maternal reports of several conditions in pregnancy (n=7,032 pregnancies). Child neurodevelopment at 8 years of age was assessed from in-person testing, from maternal reports of social and communication problems associated with autism, and from a clinical assessment of symptoms of attention problems. Covariates included psychosocial, demographic, and perinatal and obstetric risks.

**Results:** Prenatal maternal infection was associated with increased likelihood of co-occurring prenatal risk, including prenatal anxiety and prenatal smoking. Regression analyses indicated that, after accounting for covariates, child social and communication problems were significantly associated with both prenatal infection and prenatal anxiety, which operated largely independently of one another. Analyses of clinical symptoms of attention also indicated a significant and largely independent prediction from prenatal infection and prenatal anxiety, after accounting for covariates.

**Conclusion:** The results provide the first evidence for the independent effects of prenatal infection and anxiety on key neurodevelopmental markers in middle childhood, and suggest the involvement of multiple mechanisms in the prenatal programming of child neurodevelopment.

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**Maternal prenatal depression is associated with accelerated fetal development in two large, representative US samples**

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**Background:** The Developmental Origins of Health and Disease (DOHaD) model posits that early experiences, including those that occur *in utero*, influence future well-being. Data demonstrating these prenatal influences most often are based on associations between prenatal experiences, e.g., maternal depression, and child neurobehavioral outcomes years later. To further investigate the DOHaD hypothesis, studies examine maternal experiences in relation to fetal neurobehavioral development, thereby identifying the influence proximal to the timing of the effect and independent of postnatal factors. For example, fetal heart rate (FHR) decreases over gestation reflecting Autonomic and Central Nervous System development. Doyle et al (2015) have shown maternal depression is associated with a faster decrease in FHR, indicating an adverse prenatal environment may signal the fetus to accelerate its development course. In the US, rates of maternal depression are inversely associated with socio-economic standing and the newest evidence

indicates that this wealthy country includes those who are as extremely poor as those in the developing world.

**Methodology:** This report draws on two, large (n=3200 and 2400), demographically diverse, prospective samples that include impoverished participants of Native American ancestry in the US Northern Plains and serial assessments of maternal depression and FHR. Greater maternal depression is associated with (1) lower overall fetal heart rate and (2) this effect is stronger in males across both samples. Moderation by poverty level and ethnicity/race also will be examined.

**Conclusion:** A species-atypical prenatal environment such as depression exposure may prime the fetus for accelerated development as an anticipatory adaptation to non-optimal postnatal parenting.

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**Maternal antenatal depressive symptoms and its association with infant outcome; sex specific effects**

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**Background:** Previous research has shown that maternal antenatal depressive symptoms are associated with increased risk of offspring emotional and behavioural problems. Previous research has also suggested that there may be different effects of maternal antenatal stress on infant outcome dependent on infant sex and human studies. There is some evidence which suggests that females are more likely to display increased emotional problems and males to display increased behavioural problems following exposure to maternal antenatal stress.

**Methods:** This study uses data from the MBAM Study cohort (n=56 women). Maternal depressive symptoms (EDPS scores) were collected immediately prior to birth. At 4-months postpartum participants reported on their depressive symptoms and infant temperament (IBQ-R). Infant salivary cortisol levels were measured in response to a still face stressor. To examine the possible effect of infant sex when examining maternal antenatal psychological symptoms and offspring outcome, interaction analyses were conducted, using linear regression models.

**Results:** With the association between maternal antenatal stress and maternal report of infant behaviour, there was a significant interaction between maternal antenatal depressive symptoms and infant scores on the distress to limitation sub-scale of the IBQ-R, with an association observed in male infants (adj.  $\beta = .632$ ,  $p = .004$ ) but not in females (adj.  $\beta = -.142$ ,  $p = .611$ ). There was an association between maternal antenatal depressive symptoms and infant baseline cortisol concentrations, but only in female infants ( $\beta = .806$ ,  $p = .002$ ). No associations were seen in males (adj.  $\beta = .004$ ;  $p = .340$ ).

**Conclusion:** Higher levels of maternal antenatal depressive symptoms were associated with an increase in infant salivary cortisol concentrations in females and an increase in infant scores on the distress to limitations subscale in males. These findings suggest a possible divergent effect of maternal antenatal depressive symptoms on infant development depending on infant sex.

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**Early life influences on DNA methylome dynamics and relevance for child neurodevelopment.**

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**Background:** Retrospective studies suggest epigenetic modifications, such as DNA methylation, are sentinel markers of the quality of early environment, however comparable data from pediatric cohorts are lacking. Likewise, few studies incorporate prospective longitudinal bio-sampling, which would help determine how maternal perinatal mental health influences the maturation of the epigenome.

**Methods:** We draw on two independent cohorts from the US and Canada to describe how maternal mental health influences change in DNA methylation across the first year of life (Study 1: n=120). We draw on a second cohort to illustrate how infant attachment can buffer the effects of prenatal adversity on measures of child outcome and contribute to variation in DNA methylation in mid-childhood (Study 2: n=199). Bio-samples (buccal epithelial cells) were collected from children at birth and one year (Study 1) and at 7 years (Study 2). Data on genome-wide DNA methylation and child genetic variation were generated across all cohorts.

**Results:** We observed dynamic change in DNA methylation across the first year of life, a subset of these dynamically regulated CpGs were associated with maternal perinatal mental health (US cohort). Infant attachment style moderated the effects of prenatal adversity on measures of infant behavior and cognitive development and significantly associated with variation in DNA methylation across the genome at 7 years of age. These effects were most apparent when comparing children with a secure versus a disorganized attachment style and depended in part on genetic variation within the child.

**Conclusion:** Our study provides evidence of a dynamic DNA methylome that is sensitive to the effects of maternal mental health but also child genotype. This study also provides further evidence that infant attachment can buffer some of the negative effects of early adversity on child outcomes. Such a molecular signature of infant attachment may help inform attachment-focused early intervention programs, which seek to ameliorate the effects of prenatal adversity on child neurodevelopment.

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#### *Perinatal research and clinical practice in south-east London: The experience of an academic health science center*

#### **Antenatal depression programs cortisol stress reactivity in offspring through increased maternal inflammation and cortisol in pregnancy: The Psychiatry Research and Motherhood Depression (PRAM-D) Study**

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**Background & Aim:** Antenatal depression is associated with a broad range of suboptimal outcomes in offspring, although the underlying mechanisms are not yet understood. Animal studies propose inflammation and glucocorticoids as mediators of the developmental programming effect of prenatal stress on offspring stress responses, but studies in humans are not yet at this stage. Indeed, to date no study has examined the effects of a rigorously defined, clinically significant Major Depressive Disorder (MDD) in pregnancy on maternal antenatal inflammatory biomarkers and hypothalamic-pituitary (HPA) axis, as well as on offspring HPA axis, behavior and developmental outcomes in the first postnatal year.

**Methodology:** A prospective longitudinal design was used in 106 women (49 cases vs. 57 healthy controls) to study the effect of MDD in pregnancy and associated antenatal biology (inflammatory and cortisol biomarkers) on offspring stress response (cortisol response to immunization, at 8 weeks and 12 months), early neurobehavior (Neonatal Behavioral Assessment Scale, NBAS, at day 6), and cognitive, language and motor development (Bayley Scales of Infant and Toddler Development at 12 months).

**Results:** Compared with healthy controls, women with MDD in pregnancy had raised interleukin (IL) IL-6 (effect size =0.53, p=0.031), IL-10 (=0.53, p=0.043), tumor necrosis factor alpha (=0.90, p=0.003) and vascular endothelial growth factor (=0.56, p=0.008), together with raised diurnal cortisol secretion (=0.89, p=0.006), raised evening cortisol (=0.64, p=0.004), and blunted cortisol awakening response (=0.70, p=0.020). Furthermore, they had an 8-day shorter length of gestation (=0.70, p=0.005), and neonates with suboptimal neurobehavioral function in four out of five NBAS clusters measured (range of =0.45-1.22 and p=0.049-0.05).

**Conclusion:** Children of mothers who are anxious around the time of birth show increased mental health problems during the pre-school years. Further research will investigate the effects of maternal anxiety on the developing brain, as well as on parent-child interactions.

**Keywords:** prematurity, anxiety, SDQ

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#### **The neurobiological basis of puerperal psychosis: How biology and the environment interact with brain vulnerability**

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**Background & Aim:** Puerperal or Postpartum Psychosis (PP) is the most severe psychiatric disorder associated with childbirth. Although PP occurs in concomitance with the biological changes of childbirth, and is very frequent in women with specific risk factors, its neurobiological basis is still poorly understood. Thus, we conducted the first study to examine the role of multiple biological systems previously involved in the neurobiology of affective and psychotic disorders unrelated to the puerperium, and evaluated their role in relation to the occurrence of PP in women at risk.

**Methodology:** This study investigated the role of brain vulnerability and plasticity and peripheral biomarkers of stress and immune response in determining the onset of PP after childbirth. We recruited n=51 pregnant women at-risk of PP because of a history of PP, bipolar or schizoaffective disorder, and n=35 control women with no personal or family psychiatric history from Perinatal Psychiatry Services in London (UK). Women were evaluated at the 34th week of gestation, and at 8th week postpartum. We assessed psychopathology, and stress and immune response. In the postpartum we also evaluated brain structure using 3T Magnetic Resonance Imaging.

**Results:** A total of 43% of women at risk 43% had an episode of PP within 4 weeks from giving birth. The MRI showed that these women had smaller anterior cingulate gyrus, postcentral gyrus and parahippocampal gyrus than women at risk who did not develop PP (all p<0.05). They were also more likely to have experienced early adversity in childhood, and to show an abnormal stress response, as indicated by higher daily cortisol levels than those seen in women at risk who remained well ( $t(65) = -2.8, p < .01$ ). In addition, these women also showed an activation of the immune system, with higher markers of inflammation (C-Reactive protein, Interleukin L-6 and TNF- $\alpha$ ).

**Conclusion:** This evidence suggests that women at risk of postpartum psychosis who develop an episode in the postpartum share some risk factors with psychoses unrelated to the puerperium. Furthermore, the evidence that experiencing an episode of PP is associated with alterations in the stress response provides a rationale for targeting of pharmacological and psychological interventions (such as stress management) to the most vulnerable women.

**Keywords:** postpartum psychosis, pregnancy, early adversity, cortisol, brain imaging

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### Stillbirths and serious neonatal morbidity among psychiatric patients: A linked electronic healthcare database study

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**Background & Aim:** Women with severe mental illness (SMI) have an increased risk of neonatal morbidity, but little is known about its nature and correlates. Addressing this gap would guide interventions for mitigating adverse neonatal outcomes in this vulnerable group.

**Aims:** To investigate the rate of stillbirths and the extent/nature of neonatal morbidity among women under the care of psychiatric services during pregnancy.

**Methodology:** The study included all women who were under the care of a large secondary psychiatric service in South London in 2010-2016 during pregnancy, and who had a stillbirth or livebirth in one of two local maternity hospitals. Data were derived from linkages of psychiatric, maternity and neonatal healthcare records. We measured serious neonatal morbidity among babies admitted to neonatal units using a validated composite measure (the Neonatal Adverse Outcome Indicators (NAOI) which predicts readmission and infant mortality), and an additional study-specific measure (being NAOI positive or having a serious congenital malformation or having 3 or more non-NAOI morbidities).

**Results:** The rate of stillbirths among women in contact with psychiatric services was 10.1/1000 (95% CI, 6.7-15.1/1000), compared to 5.1/1000 (95% CI, 4.3-6.0/1000) in the local general population. Of the 2253 livebirths during the study period, 222 babies (9.8%) were admitted to the local neonatal unit. For these 222 admitted babies, the median length of stay was 6 days (IQR 3-16 days); a third required the highest level of care (NICU); 49% had significant neonatal morbidity when measured by the NAOI indicator; and 68% had significant neonatal morbidity when measured by our study-specific indicator.

**Conclusion:** Around one in ten babies born to women under the care of psychiatric services is admitted to a neonatal intensive care—with around two thirds of admitted babies having significant neonatal morbidity—supporting the need to treat pregnancies among women with SMI as high-risk pregnancies.

**Keywords:** electronic patients records, big data, stillbirth, neonatal unit, congenital malformation

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### Maternal trait anxiety at birth predicts mental health problems in children born very preterm

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**Background and Aims:** Maternal anxiety during the perinatal period, has been regarded as a common proxy for stress, with long-term consequences on children's neurodevelopment and mental health. Maternal stress has been studied both as a cause and a consequence of very preterm birth (i.e., before 32 weeks of gestation). In turn, approximately one quarter or children who are born very preterm have persisting mental health problems, which are characterized by inattention, anxiety, socio-emotional and internalizing symptoms. The aim of this study was to investigate the association between maternal trait anxiety measured soon after birth and mental health in pre-school children who were born very preterm.

**Methodology:** Maternal trait anxiety was assessed with the short form of the Spielberger's State-Trait Anxiety Index at term-corrected age (i.e., 40 weeks). Very preterm children entered a longitudinal study and 125 were assessed with the Strength and Difficulty Questionnaire (SDQ) and the Wechsler Preschool and Primary Scales of Intelligence test at a mean age of 54.44 months (sd=2.24) (corrected for gestational age). Maternal trait anxiety scores were used to predict children's total SDQ scores, which measure general psychopathology. Confounders used in the analyses were gestational age, socio-economic status, age at assessment and full-scale IQ. Results showed that in the fully adjusted models maternal trait anxiety measured soon after birth was associated with children's SDQ scores (F124=9.83, p=0.002), but not with IQ (F124=0.38, p>0.05).

**Conclusion:** Children of mothers who are anxious around the time of birth show increased mental health problems during the pre-school years. Further research will investigate the effects of maternal anxiety on the developing brain, as well as on parent-child interactions.

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### Mental disorders in young pregnant women: Findings from an early pregnancy cohort

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**Aim and Background:** There is increasing evidence that young women aged between 16 - 25 years are at particularly high risk of common mental disorders (CMDs). Less is known about the risk and correlates of mental disorders in young pregnant women. We aimed to compare the population prevalence of CMDs in pregnant women aged 16 - 24 years with women aged 25 years or older in a representative cohort. We hypothesized that younger women are at higher risk of CMDs, and this is associated with experience of sexual, domestic or child abuse, unemployment and low social support.

**Methodology:** Analysis of cross-sectional baseline data from a cohort of 545 pregnant women who attended a South London maternity service. Recruitment was stratified by endorsement of two questions on low mood. Participants were interviewed with the Structured Clinical Interview DSM-IV-TR (SCID).

**Results and Conclusions:** Pregnant women between 16 - 24 years are at very high risk of mental disorders; young women had 5-fold greater odds of having a CMD than women  $\geq 25$  years, and CMDs were associated with living alone and lifetime experience of abuse. Young pregnant women were more likely than pregnant women  $\geq 25$  years to experience low levels of social support, which included living alone, being homeless or living in emergency accommodation, or being single. Young women were also more likely to have an unplanned pregnancy, be unemployed or unable to work, and to have a low household income. Interventions that enhance social networks, improve insecure housing, address sexual and domestic abuse, and promote pathways to secure employment, in addition to providing appropriate mental health treatment, may minimize adverse outcomes for young women and their children.

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**Father's and mother's mental health in traumatic situations: Infertility treatment, perinatal grief and migration –Symposium of French and Portuguese speaking regional groups of the Marcé Society**

**Parental adjustment and attitudes during the transition to parenthood: The effect of infertility treatment and depression in fathers**

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**Background & Aim:** Conception after infertility treatment and depression may make it difficult to perform the developmental tasks needed to adjust to the transition to parenthood. However, most of the studies have included only women, and little is known about how infertility treatment and depression affect the transition to parenthood in men. The present study intends to analyze the effect of the mode of conception and of depression in the attitudes and the adjustment of fathers before and after the birth of the child.

**Methodology:** Fathers of babies conceived spontaneously (SC, N=126) or after infertility treatment (IT, N=71) completed questionnaires to assess depression and paternal adjustment and attitudes in the 2nd trimester of pregnancy and at 6 months postpartum.

**Results:** Depressed IT fathers reported lower parental adjustment and more negative parental attitudes than non-depressed IT fathers, depressed and non-depressed SC fathers. In depressed fathers, paternal adjustment and paternal positive attitudes decreased from the 2nd trimester of pregnancy to 6 months postpartum (while increasing in non-depressed fathers), with depressed fathers presenting less positive attitudes toward sex, lower marital relationship satisfaction, and less positive attitudes toward pregnancy and the baby.

**Conclusion:** Early detection of depression in pregnancy may identify men at risk for adjustment problems and negative paternal attitudes during the transition to parenthood, particularly when there is conception following infertility treatment.

**Keywords:** fathers, depression, mode of conception, paternal adjustment, paternal attitudes, transition to parenthood

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**Paternal antenatal attachment to the baby and emotional symptoms**

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**Background & Aim:** Pregnancy represents an important period in the life of expectant fathers. Sometimes, emotional symptoms such as depression, anxiety and stress compromise the paternal antenatal attachment (PAA). As a result, there are consequences for the baby because there is a continuum between pre- and postnatal attachment. The aim of this study is to evaluate depression, anxiety and stress in men during the second trimester of pregnancy, to analyze its relationship with PAA and to compare depression, anxiety and stress between men and women.

**Methodology:** Descriptive-correlational study. Participants: Portuguese men (N=407) during pregnancy without psychiatric pathology. Instruments: Sociodemographic questionnaire; DASS-42 (Lovibond & Lovibond, 1995; Portuguese version by Pais-Ribeiro, Honrado & Leal, 2004) and PAAS (Condon, 1993, Portuguese version by Camarneiro & Justo, 2007). Ethical assumptions were met.

**Results:** Some of the fathers (37,7%) have a strong and healthy antenatal attachment. Men present lower levels than women for depression, anxiety and stress but within normative average values. Differences between men and women are statistically significant in anxiety and stress. Depression and stress are negatively and significantly correlated with paternal quality of attachment. Paternal anxiety correlates positively and significantly with the intensity of preoccupation.

**Conclusion:** During pregnancy, men and women show differences in several aspects of emotional symptoms. The variables where these differences are observable are related to PAA. As a consequence, it is important to improve the investigation about interrelationships between emotional variables and Paternal Antenatal Attachment (PAA) during gestation.

**Keywords:** fathers, paternal antenatal adjustment, paternal attitudes, depression, transition to parenthood

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**Fathers' experience of perinatal death: A potentially traumatic experience perinatal death: Can fathers be traumatized?**

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**Background & Aim:** One out of five pregnancies end in an early or late perinatal death. Perinatal death is nowadays receiving more recognition as an event that modifies women's, men's, couples' and families' life trajectories. Perinatal death, and the subsequent bereavement associated with this event, impacts both parents' mental health, in the months and even years after the event. This presentation aims to describe how fathers' experience of perinatal death can be a psychological trauma.

**Methodology:** A qualitative study was carried out where 57 fathers having experienced a perinatal death in the past four years were interviewed (N: 36 early perinatal death, before 20 weeks pregnancy; N: 21 late perinatal death).

**Results:** Data analysis allowed the identification of a set of moments where different events could trigger a trauma for fathers. This experience impacts the fathers' relationships with their spouse, other children, and work.

**Conclusion:** Bereaved fathers would benefit from specific care and actions to support them through this experience. Health professionals need to be trained to intervene with men, taking into account men's needs and specificities.

**Keywords:** fathers, perinatal death, father mental health, trauma, qualitative study

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**Migration in the perinatal period and traumatism**

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**Background & Aim:** The hosting of migrants has become a major concern of European governments, but also of health professionals, because of the overall precariousness of these populations. The separation of families during their migration is unfortunately frequent, and many women are alone with their children upon arrival. When a pregnancy is in progress the vulnerability, especially psychological, of these women is extreme, since the perinatal period is in itself and for all women a period of transition and stress. Mental health services have to devise new care strategies to answer the specific needs of these populations.

**Methodology:** This presentation is based on clinical cases.

**Results:** We will discuss the system of prevention and care that was developed by a perinatal psychiatry network, to better support these populations of migrant women and infants as early as possible. This multidisciplinary network is based on the elaboration of coordinated and graduated pathways to care, both for their somatic and psycho-social health, according to the different vulnerabilities of each family and associating all the professionals of the perinatal health.

**Conclusion:** Obstetric and pediatric teams as well as social services must be associated to the work of perinatal psychiatry services, with particular attention to the notion of "joint care", for the mother and the child, but also the rest of the family in the context of migrant mothers.

**Keywords:** migrant mothers, infants and families, prevention, care, perinatal health network, perinatal psychiatry services, social services, Obstetrical and pediatric services

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#### *Joint admission to mother-baby units*

#### **Counting and reviewing maternal suicides in resource-limited settings: Lessons from Sri Lanka**

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**Background and Aims:** Sri Lanka is a country with relatively good health indicators. In the context of ever-reducing maternal deaths, counting, reviewing and in-depth exploration in to maternal suicides will contribute to preventive efforts in a wider perspective.

**Methodology:** We defined a maternal suicide as 'a death of a woman due to suicide during pregnancy or one year after termination of pregnancy'. Sri Lanka executes a National Maternal Death Surveillance and Response System (NMDRS). All probable maternal deaths are notified, data collected and reviewed at field, hospital and national levels. From 2016, the Psychological Autopsy tool for Maternal Suicides (PAMS) was introduced to gain a better understanding of maternal suicides. A psychiatrist visits the household with the field healthcare team to collect data and interpret findings. We analyzed maternal suicides reported to NMDRS for the period 2002–2017 and PAMS data for the year 2016.

**Results:** The country reported 410 maternal suicides during 2002–2017. Both number and rate of maternal suicides (number of deaths per 100,000 live births) increased from 0.8 (n=3, 2002) to peak at 12.1 (n=49, 2010) and declined to 8.4 (n=28, 2017). Married (n=231, 56.2%) and unmarried (n=38, 9.2%) women killed themselves during pregnancy (n=174, 42.33%) and after delivery (n=129, 31.4%) by poisoning (n=130, 31.6%), burns (n=83, 20.1%), hanging (n=75, 18.2%) and drowning (n=25, 6.1%). A majority (n=234, 75.5%) were <30 years of age, with a peak in the 26–30-year age group. Many were primi-parous (n=137, 44%). The reported unmet need of family planning was (n=67) 21.6%.

In 2016, PAMS data were available for 19 maternal suicides. The mean age was 25 years. Majority (n=14, 73.7%) were married, and 42.1% (n=8) were in their first pregnancy. Common methods used were self-poisoning (n=7, 36.8%) and hanging (n=6, 31.6%). Many (n=14, 73.7%) were temporally associated with interpersonal conflicts, and 31.6% (n=6) had prior planning - although 21% (n=4) had made prior suicide attempts. Underlying depression was likely in 36.8% (n=7). Dead women also reported a family history of suicide (15.8%, n=3) or a relation who had attempted suicide (21.1%, n=4).

**Conclusions:** Complex social scenarios, interpersonal conflicts and impulsive acts contribute to most deaths. PAMS suggests that underlying morbidity, especially depression, are important associated factors.

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#### **An MBU cannot function in isolation: The need for psychiatry to liaise actively with other specialties**

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**Introduction:** Perinatal psychiatry is highly specialized and an important area of psychiatry. Low- and middle-income countries are exposed to more adversity during the perinatal period than developed countries. Having specialized perinatal psychiatry services at tertiary-care

psychiatric centers is a welcome sign, but there are certain challenges that clinicians face. In this seminar, the author tries to look at the referrals made from the perinatal psychiatry services to other specialists.

**Aim:** To study the referral patterns of mother-baby dyads admitted to a Mother-Baby Unit in a tertiary-care psychiatric center.

**Method:** Pregnant women and mother-baby dyads, admitted from July 2016 to December 2017 to the perinatal psychiatry services at NIMHANS, were evaluated for need for medical, surgical, obstetrics, pediatric, and lactation specialist referral. The reason for referral and their inputs were evaluated.

**Results:** There were 13 pregnant women and 83 mother-baby dyads admitted during the study period. Among these, all pregnant mothers were referred to an obstetrician for routine obstetric care. Of these, four pregnant women were referred to an obstetrician and anesthesiologist to evaluate fitness to start ECT. Most of the women received neurology referrals prior to admission. Seven postpartum mothers were referred to an obstetrician. The most common reasons for referral were continued higher BP recordings with past history of pre-eclampsia, surgical removal of caesarean section sutures, white discharge, and foul discharge per vagina. Two mothers required lactation specialist referral to teach breastfeeding techniques. Two postpartum mothers required surgical and orthopedic opinion for burn injury and injury to the fingers respectively. Two mothers required endocrinologist referral for hypothyroid state. One postpartum woman required physician referral for management of low platelet count along with features of organic postpartum psychosis. Dental surgeon intervention was required for infected dental caries in one mother. Ophthalmologist opinion was sought for optic neuritis. Routinely, all infants got pediatrician referral. Fourteen infants of mother-baby dyads required pediatrician care for acute respiratory tract infection, excessive crying, café-au-lait spot with delayed milestone, diarrhea and missed immunization schedule.

**Conclusion:** Psychiatrists working in mother-baby psychiatric units need to work in close collaboration with different medical specialties in order to adequately treat co-morbidities and provide person-centered care.

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#### **Mother and baby units matter: Improved outcomes for both**

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**Background and Aims:** Mother and Baby Units (MBUs) in the UK are usually preferred by patients and clinicians. Current provision is limited although expansion is in progress. To ensure investment in services is successful, outcome measurement is vital. This study aims to describe maternal outcomes, mother-infant outcomes and their relationship in one MBU.

**Method:** Paired maternal Brief Psychiatric Rating Scale (BPRS) scores, Health of the Nation Outcome Scales (HoNOS) scores and Crittenden CARE-Index (CCI) mother-infant interaction data were collected at admission and discharge.

**Results:** There were significant improvements from admission to discharge across diagnostic groups in BPRS scores (n=152; total, z=10.54; affect, z=10.23; negative symptoms, z=9.29; positive symptoms, z=8.85; activation, z=10.34; resistance, z=8.81). Similar improvements were seen in the HoNOS scores (n=113; total, t(112) = 17.51 p<0.001). Scores in all domains except that of living conditions had improved significantly from admission to discharge (behavioral problems, t(112) = 8.47, p<0.001); non-

accidental self-injury ( $t(112) = 5.16, p < 0.001$ ); cognitive problems ( $t(112) = 6.80, p < 0.001$ ); physical and disability problems ( $t(112) = 4.24, p < 0.001$ ); hallucinations and delusions ( $t(112) = 9.07, p < 0.001$ ); depressed mood ( $t(112) = 13.58, p < 0.001$ ); other mental and behavioral problems ( $t(112) = 12.27, p < 0.001$ ); relationship problems ( $t(112) = 5.32, p < 0.001$ ); activities of daily living ( $t(112) = 6.34, p < 0.001$ ); problems with work or activities ( $t(112) = 3.74, p < 0.001$ ); living conditions ( $t(112) = 0.78, p = 0.44$ ). Crittenden CARE-Index scores showed similar improvements ( $n=62$ ; maternal sensitivity ( $z=-4.27, p < .001$ ) and unresponsiveness ( $z=-2.34, p=0.02$ ); infant cooperativeness ( $z=-3.77, p < 0.001$ )). The changes in maternal sensitivity and infant cooperativeness were positively correlated ( $r(s) = .69, p < .001$ ). Maternal BPRS scores and mother-infant interaction scores were unrelated. Improvement in maternal HoNOS scores was associated with improved maternal sensitivity ( $N = 49, r(s) = -.36, p = .01$ ), reduced maternal unresponsiveness ( $r(s) = +.44, p=.001$ ) and infant passiveness ( $r(s) = +.28, p < 0.05$ ).

**Conclusion:** Positive outcomes were achieved for mothers and babies across all diagnostic groups. Reduction in maternal symptoms, as measured by BPRS, does not necessarily confer improvement in mother-infant interaction. MBU treatment should focus on maternal symptoms and mother-infant interaction.

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#### Assessing and addressing violence in the perinatal period Assessing and addressing violence women and men in 39 low- and middle-income countries

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**Background and aims:** Violence against women perpetrated by an intimate partner (IPV) is prevalent in low- and middle-income countries (LAMIC). The aim was to describe the attitudes of women and men towards perpetration of physical violence to women by an intimate partner, in a large group of low- and middle-income countries.

**Methodology and findings:** We used data from Round Four of the UNICEF Multiple Indicator Cluster Surveys. Attitudes towards IPV against women were assessed by a study-specific scale asking if 'wife beating' is justified in any of five circumstances.

Overall, data from 39 countries (all had data from women and 13 countries also had data from men) were included in the analyses. The proportions of women who held attitudes that 'wife-beating' was justified in any of the five circumstances varied widely among countries from 2.0% (95% CI, 1.7;2.3) in Argentina to 90.2% (95% CI, 88.9;91.5) in Afghanistan. Similarly, among men it varied from 5.0% (95% CI, 4.0;6.0) in Belarus to 74.5% (95% CI, 72.5;76.4) in the Central African Republic. The belief that 'wife-beating' is acceptable was most common in Africa and South Asia, and least common in Central and Eastern Europe and Latin America and the Caribbean. In general, this belief was more common among people in disadvantaged circumstances, including being a member of a family in the lowest household wealth quintile, living in a rural area and having limited formal education. Young adults were more likely to accept physical abuse by a man of his intimate partner than those who were older, but people who had never partnered were less likely to have these attitudes.

**Conclusions:** Violence against women is an international priority and requires a multicomponent response. These data provide evidence that strategies should include major public education programs to change attitudes about the acceptability of IPV against women, and that these should be addressed to women and girls as well as to boys and men.

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#### Intimate partner violence as an effect modifier for the impact of psychosocial interventions for women's mental health in LMICs: Systematic review and meta-analysis

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**Background and aims:** Intimate Partner Violence (IPV: physical and psychological abuse, sexual coercion and controlling behavior) is common. It is an important social determinant of physical and mental health, associated with suicide. There is limited evidence on mental health interventions for women experiencing IPV, especially in low- and middle-income countries (LMICs). The aim of this systematic review and meta-analysis is to test the hypothesis that IPV moderates the response to psychosocial interventions for mental health problems, with greater IPV associated with reduced response. It also aims to identify the implementation strategies for success, barriers and drivers to implementation identified by included studies.

**Methodology:** The study was registered on the PROSPERO database (CRD42017078611). A systematic search of MEDLINE, Embase, PsycINFO, Web of Knowledge/Web of Science, Scopus, CINAHL, LILACS, ScieELO/Web of Science, Wiley online library, Cochrane, PubMed databases, trials registries (Cochrane, NIH, EU, African and ISRCTN), 3ie, Google Scholar, included studies' reference lists and grey literature was performed. All trials of psychosocial interventions conducted in LMICs, which measured mental health symptoms before and after intervention, in which IPV was also measured, were included. No language restrictions were applied to inclusion decisions. If selected for presentation, the results will be presented to the Marcé society biennial conference. If homogeneity is sufficient, aggregate data meta-analysis will be presented. A narrative synthesis of implementation strategies for success, barriers and drivers to implementation reported by included studies, will also be presented.

**Conclusion:** IPV is rarely addressed or recorded by trials, but psychosocial interventions have shown reduced IPV alongside improved mental health and birth outcomes. UN sustainable development goal five and the World Psychiatric Association prioritize IPV interventions, and World Health Organization guidelines recommend identification, training, woman-centered care and support. This presentation will share the results of the first systematic review and meta-analysis of the role of IPV in psychosocial treatment outcomes in LMICs, crucial to the planning and scaling-up of interventions which meet the needs of women and families around the world.

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#### Cross-cultural assessment of intimate partner violence: No one size fits all!

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Intimate Partner Violence (IPV) is a serious public health concern globally. Published literature on the prevalence, correlates and health consequences of IPV has used a variety of measures. These include single item ratings, checklists, standardized questionnaires and interview-based methods. Since IPV is a complex yet delicate topic that is quite often studied in vulnerable samples, it becomes imperative that assessment methods reflect adequate sensitivity to both gender and culture. In my presentation, I will compare IPV measures used in our recent research studies that are a combination of descriptive (ICMR study on prevalence and correlates of IPV and MBU), cohort (PRAMMS study), and RCT (MAHILA study on WLHIV and ICMR study on perpetrators of IPV) research designs. Data from these studies and our experience using diverse methods (single item ratings, questionnaires and interview schedules) indicate that (a) Obtaining informed

consent in violence research should be a process rather than a one-time formality. (b) To ensure better cross-cultural sensitivity, measures developed in the same culture or those with adequate adaptation may be used. (c) The nature and order of questions, language and method of initiation and termination of the interview may often make a difference to psychological impact. Preludes may be introduced to facilitate transition between different sections of an interview schedule and to provide a rationale for further enquiry. (d) While semi structured interview schedules using a developmental trajectory are most suited, questionnaires with a less structured and rigid approach may also be used. (e) Different types and manifestations of violence may be culturally determined so as to obtain information about softer forms of violence as well. (f) Reports of adverse events are likely in violence research, and hence such studies must include mental health intervention, ongoing follow up, documentation and appropriate referral services. (g) Finally, since the researcher and the subject of the research are both affected in a study of this nature, adequate sensitization, ongoing training and supervision of research staff are essential to obtain reliable data.

## BLITZ SESSIONS

### “Pregnant and incarcerated...” the development of a perinatal and infant mental health service for women in custody

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**Background and aims:** Increased risks to mental health for pregnant women in custody in New South Wales (NSW) Australia, were identified in a Government report “*Living Well: A Strategic Plan for Mental Health in NSW*” (2014). Subsequent funding for Perinatal and Infant Mental Health (PIMH) across NSW, included, from October 2016, a new PIMH position within the Justice Health and Forensic Mental Health Network (JH&FMHN); a mental health service which cares for patients in custody in NSW. The NSW JH&FMHN PIMH role is a unique position in a custodial environment.

Women in custody have high rates of trauma, childhood sexual assault, disrupted family units, domestic violence and drug use. Many already have a diagnosed mental illness, and the identified vulnerabilities and situational stress increase their risk of developing stress, anxiety and depression during pregnancy or postpartum. Many women are known to Family and Community Services, the NSW Child Protection NSW Department, and are unable to maintain contact with their baby in the postpartum period.

The aim of this oral presentation is to discuss the development of the service and the context of working with women in the perinatal period who are experiencing complex mental health problems. Challenges of working in a correctional environment will be discussed. Case studies will highlight innovative use of technology, including video-link for specialist Perinatal Psychiatry consultations, and adaptation of online perinatal mental health treatment which is being incorporated into the service.

**Methodology:** The content of this presentation draws on a range of data sources and will describe:

- *Demographics; perinatal patients in custody*
- *Identified risks for pregnant women*
- *Development of the service delivery model*
- *Multidisciplinary and multi-agency development of collaborative care model*
- *Incorporation of video-link for external consultation*
- *Adaptation of online resources to support perinatal mental health care*

**Conclusion:** The presentation will discuss innovative development of a Perinatal and Infant Mental Health program for pregnant and postpartum women in custody in NSW, and how technology has been incorporated into service delivery.

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### MotherHope Indonesia: Striving for perinatal mental health literacy in a lowmiddle-income country

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**Background:** MotherHope Indonesia (MHI) was founded in 2015 based on the initiative of Nur YanaYirah who was a Postpartum Depression survivor. MHI aims to promote perinatal mental health literacy to enable adequate supports for mother and families affected by Perinatal Mood and Anxiety Disorders (PMADs), access to the information and connect them to professional while there is no mental health system integrated in perinatal care and services in Indonesia.

**Purpose:** The purpose of this abstract is to provide information about the activities of MHI to support mothers and families, eliminating the stigma, increasing awareness and education about PMADs amongst public, students, and healthcare professionals. Challenges and supports will be presented.

**Results and discussion:** Currently, MHI Facebook page has more than 14.000 members and there are 30 dedicated volunteers from different educational backgrounds, including professionals in mental health to meet goals of the MHI missions through various activities, including on-line and off-line peer group, free line call, private psychoeducational sessions either in hospital or midwifery private practice, volunteer training, radio broadcasting, online seminar through YouTube and other social media.

MHI has been supported by Postpartum Support International, Indonesia Ministry of Health, other local communities and Non-Government Organization(NGO) which focussed on mental health issues. Social stigma, religious judgment, lack of funding, unavailability of a screening tool and trained health workers in Antenatal Care Service are the four main challenges to reach MHI mission.

**Conclusion:** MHI strives to support mothers and families who are affected by PMADs as well as increase awareness amongst public and other healthcare professionals related to PMADs through many difficult circumstances. We believe that our small actions could contribute to a better perinatal mental health literacy in Indonesia.

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### Effect of the 2015 Nepal earthquakes on symptoms of common mental disorders among women who are pregnant

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**Background and aim:** Antenatal mental health problems are of concern globally not only because of the burden and limits to participation experienced by women, but also because of risks for fetal neurocognitive development and adverse birth outcomes. The aim was to describe the indicative prevalence of and risk and protective factors for clinically-significant symptoms of common mental disorders (CMDs) among women who experienced the 2015 Nepal earthquakes during pregnancy.

**Methodology:** A population-based cross-sectional study in Bhaktapur, one of 14 districts highly affected by the 2015 Nepal earthquakes. The primary outcome, clinically significant symptoms of CMDs, was ascertained using the Nepali validation of the Edinburgh Postnatal Depression Scale (EPDS-N). In order to investigate potential trauma reactions, a sub set of EPDS items as indicators of trauma symptoms was constructed. Standardized instruments and study-specific questions were used to measure potential risk and protective factors. Data were collected in individual structured interviews by trained health researchers. A hierarchical multiple linear regression model was used to establish risk and protective factors for clinically significant symptoms of CMDs and indicators of post-earthquake trauma reaction.

**Results:** Overall, 497/498 eligible pregnant women provided complete data. We found that 21.9% (95% CI, 18.4; 25.8) of participants had EPDS-N scores >12 and another 17.1% (95% CI 13.9; 20.7) scored 10 to 12 indicating high prevalence of clinically significant CMD symptoms. In total, 20 factors were included in the final hierarchical linear regression model and together explained 33.3% of the variance in EPDS total scores; seven factors, including earthquake experiences and lifetime experience of intimate partner violence increased risk and five including having income-generating work and a kind and encouraging partner were protective. The association between earthquake experiences and the indicators of trauma symptoms was not significant in the hierarchical multiple linear regression analysis.

**Conclusions:** In addition to restoration of antenatal and obstetric services, the mental health of women who are pregnant requires specific consideration and interventions after natural disasters. This should take into account the additional adverse impact of violence perpetrated by an intimate partner.

**Key words:** antenatal, earthquake, Common Mental Disorders, Intimate Partner Violence

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### Refining the development of a short mental health screening tool for use in low-resource, primary care settings

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**Background and aims:** The burden of common perinatal mental disorders (CPMD) in low- and middle-income countries (LMICs) is approximately 3 times higher than in high-income countries. Multiple gaps exist in their detection, treatment and care at primary-level health care settings in LMICs. This study aimed to develop a short mental health screening tool to detect symptoms of antenatal depression and anxiety, for use in low-resource settings, by non-specialist health workers.

**Methodology:** Systematic sampling at a primary-level obstetric clinic was used to recruit 376 participants. Five depression and anxiety symptom-screening questionnaires were administered, as well as demographics questions and screens measuring psychosocial risk. Subsequently, participants were interviewed with the MINI International Neuropsychiatric Interview (MINI Plus). Screening items were analyzed against MINI diagnostic data using multiple logistic regression and ROC analysis. The best-performing items were combined to form a new screening tool. The performance thereof was compared to the EPDS, PHQ9 and K10.

**Conclusion:** The overall prevalence of MDE was 22% and anxiety disorders was 23%. Eighteen % of participants expressed suicidal ideation and behavior, and 54% of these had no depression or anxiety diagnosis. Multiple logistic regression identified 3 symptom-screening items that were predictive of depression and/or anxiety diagnosis. A 4th item asking about suicidal ideation was added for clinical reasons. The most 'clinically' useful cut-off for the combined screening items was a score of 2 or more, with a sensitivity of 78% and specificity of 82%. Shorter versions of this screening tool were also explored, with 3-item and 2-item versions generated. Although 5 psychosocial risk items emerged as significant predictors for depression and anxiety, adding these to the symptom-screening items did not significantly enhance the predictability of the tool. This is the first screening tool for CPMD developed in sub-Saharan Africa to include both depressed mood and anxiety symptoms. It may

be clinically useful as a screening intervention aimed at early identification of mental health risk and morbidity in the perinatal period. Using risk factor screening as an adjunct to symptom screening in low-resource settings does not appear to enhance screening outcomes.

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### Nurses perceived preparedness to screen, intervene, and refer suspected postpartum depression cases

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**Background and aims:** Screening initiatives for postpartum depression are being implemented around the world in order to detect women who are suffering and refer them for help. In order for an initiative to succeed, caregivers should feel prepared to carry it out; however, the perceived preparedness of those who perform the postpartum depression screenings, such as public health nurses, has not been examined. In 2013 a universal screening program for postpartum depression was implemented in Israeli Mother-and-Child Health Clinics by public health nurses who screen for postpartum depression, provide support, and refer women for treatment. The aim of this study was to examine the perceived preparedness of Mother-and-Child Health Clinic public health nurses to screen postpartum women for postpartum depression symptoms, conduct an initial intervention and refer women, as well as factors associated with this perceived preparedness.

**Methodology:** Two hundred and nineteen (n=219) Mother-and-Child Health Clinic public health nurses participated in the study and answered questionnaires regarding their perceived preparedness, attitudes, perceived knowledge and perceived competence to screen, intervene and refer women with postpartum depression symptoms.

**Conclusions:** Participants' average perceived preparedness to screen and to refer were significantly higher (M1=3.58, M2= 3.60; respectively) than their perceived preparedness to intervene (M3= 3.20) (F=52.56, p<.001; and M1, M2>M3, P<.001; Pairwise post hoc analysis with Bonferroni correction). Moreover, a path analysis revealed that formal and informal training, attitudes, perceived knowledge and perceived competence were associated with perceived preparedness to screen (b=.31, p<.001; b=.08, p<.01; b=.31, p<.001; b=.24, p<.001; b=.20, p<.01, respectively); attitudes, perceived knowledge and perceived competence were associated with perceived preparedness to intervene (b=.34, p<.001; b=.27, p<.001; b=.47, p<.001, respectively); and attitudes and perceived knowledge were associated with perceived preparedness to refer (b=.24, p<.01; b=.24, p<.001, respectively). Difference in these associations were found between nurses based on their age, academic degree and experience.

It is therefore suggested that in order for nurses to feel prepared to screen, intervene and refer in cases of postpartum depression, ongoing training, both formal and informal, focusing on enhancing knowledge, positive attitudes and competence should be provided.

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### Self-report of depression care by obstetric providers in the context of state-wide program designed to increase frontline provider capacity to address perinatal depression

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**Background and Aims:** Perinatal depression (PND), the most common pregnancy complication, is associated with negative maternal-offspring outcomes, mitigated with effective treatment, and yet is under-recognized and under-treated. Significant attention has been brought to addressing PND in obstetric-settings. Professional organizations recommend universal screening within systems assuring assessment/diagnosis, treatment, and follow-up. However, barriers exist to comprehensive depression care in obstetric-settings, and there exists limited data informing current provider efforts. Our goal is to describe obstetric-provider attitudes, approaches, and resources when addressing PND within context of the state-wide Massachusetts Child Psychiatry Access Program (MCPAP) for Moms, designed to address barriers and increase provider capacity through: 1) trainings/toolkits; 2) perinatal psychiatry telephonic access; and, 3) resource/referral care coordination.

**Methodology:** Obstetric Licensed Independent Providers (LIPs; physicians, nurse-midwives, nurse-practitioners) from 12 practices completed baseline surveys: (1) modified Smoking Knowledge, Attitudes, and Practices Instrument (S-KAP) adapted for OB-setting, and (2) Likert-scale questions querying practice environment, depression management self-efficacy, adequate care access, and ability to ensure timely treatment.

**Results:** 136 LIPs completed the survey. The majority (86%) agreed/strongly agreed that addressing depression is important, and that they provide reassurance/support regarding depression (99%), discuss treatment options (93%) and risks/benefits of antidepressant use in pregnancy/lactation (90%), start antidepressants when indicated (80%), monitor depression-severity when patients are on antidepressants (81%), and transition women to ongoing psychiatric follow-up when obstetric-care is complete (73%). A lesser majority agreed/strongly agreed to being able to: meet the needs of obstetric patients with depression (70%), ensure timely depression treatment (66%), adjust medications as indicated (60%), or obtain perinatal psychiatry consultation in a timely manner (57.3%). In treating depressed patients, less than half agreed/strongly agreed to having confidence in their own abilities (43%), doing so effectively, (43%), or having access to non-medication treatment (46%).

**Conclusion:** In the context of the MCPAP for Moms program, designed to support OB providers in addressing PND, LIPs recognize addressing PND as important and engage in care. These results may be optimistic compared to providers without systematic programmatic support. Further efforts are needed to increase provider confidence, and to improve access to effective timely treatment and resources, in addition to understanding perinatal women's experiences.

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#### **Adherence and persistence to antidepressant medication during pregnancy: Does it differ by the class of antidepressant medication prescribed?**

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**Background and aim:** Pregnant women are often concerned about the impact of antidepressant medication use on their pregnancy, such as congenital abnormalities. This concern may vary in a way that depends on the class of antidepressant medication prescribed. This study examined the rate of adherence and persistence to antidepressant medication based on the class of antidepressants prescribed during pregnancy

**Methodology:** This is a retrospective cohort study that used population-based administrative data holdings in Alberta. The health-specific data holdings include delivery record, hospitalization data, outpatient physician claims data, emergency department data, and prescription medication data. The eligible study population included women who gave birth between 2012-2015, had  $\geq 1$  diagnosis of depression within 1-year pre-conception, and were adherent (medication possession ratio  $\geq 80\%$ ) to  $\geq 2$  consecutive antidepressant prescriptions during the preconception year ( $n=1,865$ ). The rates of adherence and persistence (prescription refill gap  $\leq 30$  days) were calculated by medication class and were compared using chi-square tests.

**Results:** During pregnancy, 834 (44.7%) women completely stopped taking antidepressants. Among those taking antidepressants, the overall rate of adherence was 62.6% (95% CI: 59.4%, 65.7%). The rate differed significantly by medication class ( $p<0.0001$ ), with rate of 75.1% (95% CI: 68.3%, 80.9%) for serotonin-norepinephrine inhibitors, 60.9% (95% CI: 57.2%, 64.5%) for selective serotonin reuptake inhibitors, 42.9% (95% CI: 19.9%, 69.2%) for non-selective monoamine reuptake inhibitors, and 37.5% (95% CI: 22.4%, 55.4%) for the atypical antidepressants. Similarly, 40.7% (95% CI: 37.5, 44.0) of women were persistent to antidepressants up to the full pregnancy period – similar to the adherence pattern, the rate differed significantly by medication class.

**Conclusions:** Adherence to and persistence in using antidepressants is low during pregnancy and it varies by medication class. This possesses large number of women at high-risk for developing the severe symptoms of depression (or relapse), consequently exposing fetuses and newborns to the negative impacts of perinatal depression. Low adherence and persistence to antidepressants could be improved by conducting more research on drug safety during pregnancy and translating research evidence into treatment decision and correcting mothers' misperceptions towards antidepressants.

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#### **Longitudinal association between child emotion regulation and aggression, and the role of early parenting: a comparison of three cultures.**

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**Background & aims:** The ability to regulate emotions is a key developmental achievement, acquired during social interactions and associated with better socio-behavioral outcomes. We first examined the influence of culture on early parenting practices, and later child emotion regulation (ER) and aggression. We next examined the mediating role of parenting on observed group differences in ER.

**Methodology:** We assessed 48 mother-infant dyads from three cultures (one UK, two South African (SA), one low risk, from Stellenbosch, and one high risk, from Khayelitsha). At 3 months maternal sensitivity during face-to-face interaction and responses to infant distress were assessed at home. At two years, observed child ER strategies and maternal reports of aggression were measured.

Through a generalized linear modelling framework, cultural differences in child ER were observed: more distraction in UK children ( $p=0.001$ ), more attempts to obtain the toy in the low risk SA sample ( $p<0.001$ ), both considered as constructive ER strategies, and more passive gaze in the SA high risk group ( $p=0.001$ ). These ER strategies were differentially associated with aggression level (all  $p\leq 0.002$ ). Highest aggression was reported in the high-risk SA

sample ( $p < 0.001$ ). In line with a priori predictions, maternal responses to distress differed by culture (e.g. low risk SA mothers scored higher in social soothing and lower in dismissal compared to the high-risk SA sample ( $p < 0.001$ )). This in turn fostered later constructive child ER, evidenced in mediation analysis ( $p = 0.003$ ). By contrast, maternal sensitivity during face-to-face interactions was not associated with culture and showed no clear relationship with child ER.

**Conclusions:** Cultural differences in maternal responses to infant distress mediated differences in child ER. These were, in turn, related to differences in child aggression at age two. Findings are discussed in the context of research carried on in inter-dependent vs. independent cultural settings and its related issues. Further studies with a larger sample and using additional dimensions of parenting (e.g. harsh discipline, control) should be conducted to investigate associations between ER and socio-behavioral outcomes in different cultural contexts.

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### Women's lived experiences and the psychiatric sequelae following a severe life-threatening event during pregnancy

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**Background and aims:** Women's health including sexual and reproductive health is receiving increasing attention as a global health priority. Studies indicate that pregnancy related complications are the leading cause of maternal mortality and disability worldwide in young women. Furthermore, severe obstetric complications are common in low-income countries, but the experiences of women who survive these complications are rare. The study set out to determine whether women who experience severe life-threatening stressors during pregnancy are more vulnerable to develop psychiatric complications and what are their lived experiences following the life-threatening event?

**Methodology:** The study was conducted at two university hospitals in Pretoria, South Africa. Ethical approval for conducting this study was obtained from the Ethics Committee in the Faculty of Health Sciences at the University of Pretoria. A mixed-method study design was executed in a parallel convergent manner. Data collection occurred concurrently and merging occurred at the level of interpretation. Participants consisted of two groups; women with life-threatening complications and those with uneventful pregnancies. They were interviewed at four separate time intervals. The quantitative arm consisted of completion of Level 1 and symptom appropriate Level 2 questionnaires and a WHO Disability Assessment. The qualitative arm consisted of semi-structured interviews of sixteen purposefully sampled participants.

**Results:** A total of eighty-nine women signed informed consent to participate in the study. Women with life-threatening complications presented with a greater variation in their levels of functioning than women with uneventful pregnancies. The psychiatric complications included depression, anxiety disorders, cognitive and memory deficits, sleep and somatic disorders, and psychotic and substance use disorders. Participants with life-threatening stressors experienced greater distress and psychiatric complications which were self-limiting.

Contributory factors included individual traits, the role of the community and culture. An overarching finding was the sense of acceptance, the will to survive and an unwavering faith in God.

**Conclusion:** Women in the study were exposed to life-threatening complications that predisposed them to develop postpartum psychiatric complications. However, despite experiencing severe stressors and adversity, these women were able to adapt and cope. Maternal mental health, requires a comprehensive approach that addresses not only the biological but the psychological, socio-cultural and religious aspects of health.

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**Breastfeeding and perinatal mental health: A dependence relationship**  
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**Background and aim:** Breastfeeding is not only the ideal way of feeding newborns/infants, it also improves maternal psychological well-being after birth. Moreover, it has been associated with reduced anxiety, increased pleasure, satisfaction and improved mood in post-partum period. The early cessation of breastfeeding increases postnatal anxiety and depression symptoms as well. Thus, there is a mutual association between maternal mental health and (exclusive) breastfeeding. The aim of the present study is to investigate the contribution of maternal mood before and after birth to exclusive (or non-exclusive) breastfeeding duration in Greece.

**Methodology:** All mothers ( $n=208$ ) who had attended the antenatal classes of "Day Center for the Care of the Mental Health of Women (Postpartum Disorder)" in Athens Greece and had given birth in 2016 were surveyed. Maternal psychological symptoms before and after childbirth were assessed using Edinburgh Postnatal Depression Scale (EPDS) and Patient Health Questionnaire (PHQ-9). A questionnaire for socio-demographics maternal characteristics was used. Chi squares tests were conducted using SPSS version 22.

**Results:** The vast majority of mothers continue exclusive (68.6%) or not exclusive (75.3%) breastfeeding from 6 up to 14 months after birth. The half mothers (50%) suffer from a mood or anxiety disorder and almost the same percentage (45.7%) visited a mental health professional at the past. Socio-demographic maternal characteristics like age, educational, marital and economical status are not related with breastfeeding duration. Instead, maternal psychological symptoms in perinatal period and psychotherapy in pregnancy are associated to decrease of exclusive ( $p=0.002$ ,  $p=0.047$  respectively) or non-exclusive breastfeeding's duration ( $p=0.014$ ,  $p=0.018$  respectively). Also, EPDS' ( $p=0.013$ ) and PHQ's ( $p=0.008$ ) increased score in postnatal period are related with early breastfeeding cessation.

**Conclusion:** Maternal psychological symptoms during perinatal period are maybe associated with reduced exclusive (and non-exclusive) breastfeeding duration. Because of breastfeeding's favorable role in maternal mental health, it would be extremely reasonable if perinatal mental health was integrated as a key aspect into the antenatal and postnatal community training programs.

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### Directed oocyte donation: crossed perspectives of the donor and the recipient couple. A Quebec research

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**Aims & Background:** The first oocyte donation was made in Canada in 1987 and every year, nearly 400 children are born in Canada through this gamete donation. The socio-legal context of Quebec allows access to different methods of oocyte donation: anonymous or known (open identity), directed or personalized anonymity

donations. The gesture must be voluntary and free. About the directed egg donation, no empirical study links the issues of the donor with those of the recipient couple. This ongoing qualitative research responds to a recommendation from the Health and Welfare Commissioner and aims to define the needs and expectations of the recipient couple and the oocyte donor.

**Methodology:** The grounded theory constitutes the frame of reference for the collection of data and their analysis. An inductive logic has guided the conduct of semi-directed interviews lasting 90 minutes with the completion of a free genogram. Eight recipient couples and eight donors were interviewed. The verbatims were the object of a comprehensive analysis, then of a thematic analysis gradually becoming an analysis by conceptualizing categories with the support of the NVIVO QSR software.

**Results:** The psychological issues of the recipient couple and the egg donor will be presented highlighting what they have in common and what's specific to them. These different needs and stakes will be placed on a timeline covering the entire perinatal period, thus revealing the parameters of clinical support. Different key moments such as the mutual choice between oocyte donor and recipient couple, the puncture scene, the embryo transfer and the delivery will be more particularly described: they highlight the existence of a relational and affective history between the different actors surrounding the welcoming of the child born of the egg donation. A place for everyone is granted by grief processes.

**Conclusion:** Better understanding each party's stakes helps to provide benchmarks for clinical support. Directed oocyte donation brings a different perspective on the marketability issues traditionally raised around the use of oocyte donation.

**Keywords:** directed oocyte donation, couple, donor, psychological issues, motivations, transition to parenthood

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#### Father group leaders' experiences of creating an arena for father support – A qualitative study

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**Background:** Parental classes consisting of only fathers, hereafter referred to as father groups, have existed in Sweden since the mid-1990s.

**Objective:** To describe the father group leaders' perspectives on and experiences of father groups.

**Method:** A qualitative study was conducted using content analysis. Eleven individual interviews with father group leaders were conducted. An interview guide was used.

**Settings and participants:** The study was set in different parts of Sweden. The participants were eleven men who are father group leaders. They were recruited using the snowball method.

**Findings:** The group leaders described how participants often have high education levels and orderly social circumstances. The leaders thought that the groups increased reflection about parenthood and whole family could benefits in both the short and long term. The father group leaders reported that some of the topics in the sessions directly influenced fathers to more openly discuss issues regarding equality and their co-parenting relationship. They also argued that participating in father groups might help convince fathers to take more parental leave and build stronger relationships with their partner and child.

**Conclusion:** The group leaders stated that fathers realize that their choices affect their family and positively affects father's relationships with their partner and children. The group is a place where prospective and new-born dads can get support, meet other new dads and create networks.

**Keywords:** Content analysis, family, fathers, group leaders, groups.

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## BRIEF PRESENTATIONS

### “They don’t ask so we don’t talk” – Barriers and facilitators among low-income pregnant women in discussing mental health issues: A qualitative study from South India

Ashlesha Bagadia

**Aim & Background:** Mental health assessments and interventions in the perinatal period are poorly addressed in low- and middle-income countries. Before introducing initiatives, it is important to understand the perceptions of pregnant women with regards to mental health issues. This qualitative study was undertaken in a primary healthcare setting among low income pregnant women in Bengaluru to identify barriers and facilitators to addressing mental health issues.

**Methodology:** Two focus groups of 6 pregnant women each were conducted in Anganwadi (primary healthcare) centers catering to low income women. Two clinicians conducted the focus groups using a topic guide. Transcribed interviews were translated. The analysis and coding was done by two independent researchers. Key themes were identified based on the narratives.

**Results:** Pregnant women felt that mental health problems were common but did not know the impact it might have on their pregnancy. Limited awareness and stigma stood out as the main internal barriers. Women felt that a label would further lead to loss of autonomy within an already patriarchal environment. Awareness about potential harm to the baby was seen as a motivating factor to discuss emotional issues and accept help. Other facilitators included the antenatal care provider's willingness to talk about mental health and their ability to provide a safe, confidential space. Women felt health providers did not ask them and hence were not sure if emotional issues could be discussed. They mentioned a preference for a conversational style interview rather than questionnaires or forms, which were seen as deterrents to revealing their innermost problems.

**Conclusions:** This study highlights the need to improve awareness about perinatal mental health issues amongst primary healthcare providers as well as pregnant women. Up-skilling frontline staff, using brief interviews and ensuring a quiet and safe space, need to be priorities. It is heartening to know that women are willing to discuss mental health issues provided they know its importance and when done in a respectful and sensitive manner.

**Keywords:** perinatal mental health, community perceptions, barriers to mental healthcare

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### Postpartum psychosis in the 19th century: The earliest descriptions in North America in the work of Dr Richard Gundry

Philip Boyce

**Aim & Background:** The Marcé Society takes its name from the pioneering work of the French psychiatrist Marcé. There were however other writers in the 19th century who also wrote detailed descriptions of postpartum psychosis. The aim of this paper is to bring to the attention of members of the perinatal clinicians the excellent work by Dr Richard Gundry and his description of 'puerperal insanity'. This paper also aims to demonstrate the consistency of descriptions of postpartum psychosis over time.

**Methodology:** The literature on postpartum mental illness in the 19th century was examined. Dr Gundry's work was identified as being detailed in that he focused on the epidemiology as well as the clinical presentation of the disorder.

**Results:** Gundry found that about 10% of women in asylums at the onset of the illness in the postpartum period, but only a small proportion of pregnant women subsequently had a mental illness. He suggested that there was a hereditary component in about 40% of cases however, he was unable to identify any specific social or epidemiological risk factors for the disorder. He made a detailed description of the timings of onset of the disorder is (a small proportion having onset in pregnancy, the majority in the first months postpartum and small proportion associated with lactation). He provided a detailed description of the women's symptoms; these will be presented in this paper.

**Conclusions:** Gundry's work on puerperal insanity is remarkably consistent with contemporary findings on the epidemiology and phenomenology of postpartum psychosis. This builds to the case for recommending that postpartum psychosis should be considered as a unique disorder and not merely a variant of bipolar disorder.

**Keywords:** postpartum psychosis, epidemiology, phenomenology, history  
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#### **Preliminary severity ranges for scores on the Edinburgh Postnatal Depression Scale**

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**Background and Aims:** The present study established preliminary severity ranges for scores on the Edinburgh Postnatal Depression Scale (EPDS) based on the Beck Depression Inventory (BDI), a widely used depression symptom scale with established severity ranges.

**Background:** The EPDS is widely used to identify clinically significant levels of depression in perinatal women. In both clinical and research settings, EPDS cutoff scores identify women with/without probable depression. This dichotomous approach renders all women classified as possibly depressed as one, equivalent group and fails to account for the variability of depression symptom severity. The identification of depression severity ranges (e.g. mild, moderate or severe) for EPDS scores would provide incremental information regarding severity of depression, which in turn, could inform treatment referrals and lead to increase specificity in research.

**Methodology:** In a convenience sample of 1516 postpartum women who had completed the EPDS and the BDI, equipercntile linking was used to identify concordance between EPDS and BDI scores. Preliminary severity ranges were then established by identifying EPDS scores that corresponded to established severity ranges on the BDI.

**Results:** The following severity ranges were identified for EPDS scores: no/minimal depression (EPDS 0-6); mild depression (EPDS 7-13), moderate depression (EPDS 14-19), severe depression (EPDS 19-30). Notably, an EPDS score of 19 corresponded to both a score of 29 and 30 on the BDI and that scale's cut point for moderate vs. severe depression.

**Conclusions:** Postpartum women experience a wide range of depression severity. The establishment of severity ranges for EPDS scores may guide treatment referrals and increase depression severity specification in treatment studies. Although the study sample size was large, only a limited number of women scored in the severe range of depression symptoms. Replication in a larger sample of depressed postpartum women is therefore an important direction for future research.

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#### **Factors to mitigate the influence of maternal mental health on social-emotional development and behavior problems at age 2: The All Our Families cohort, Canada**

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**Aim & Background:** Poor maternal mental health increases risk for social-emotional delays and behavioral problems at preschool age, potentially leading to poorer academic achievement. Understanding factors for sub-optimal development requires consideration of family circumstances, maternal mental health, and social support for targeted early intervention. **Aims:** To identify factors that modify risk for delayed social-emotional development and behavior problems at age 2 years, in consideration of maternal mental health.

**Methodology:** Women recruited in 2008, 76% (n=1595) completed 5 questionnaires from mid-pregnancy to 2 years postpartum. Questionnaires included information on mental health, social support, partner relationships and past adversity. At age 2, the Brief Infant-Toddler Social and Emotional Assessment (BITSEA) measured social-emotional competence and behavioral problems. Regression modeling identified key factors for delayed social-emotional development and behavior problems.

**Results:** At age 2, 13% (n=210) of children had delayed social-emotional development, 15% (n=236) had behavioral problems. Risk factors for delayed social-emotional development included maternal depression (OR 2.46, 95% CI, 1.63-3.72), lower parenting self-efficacy (OR 2.76, 95% CI, 1.51-5.06), the child not engaging in daily imitation play (OR 1.43, 95% CI, 1.02-1.99), the child experiencing sleep onset delays (OR 1.58, 95% CI, 1.05-2.37) and not attending an informal play group (1.43, 95% CI, 1.03-1.99). Risk factors for behavior problems included; lower maternal optimism (OR 2.02, 95% CI, 1.36-2.99), maternal depression (OR 2.19, 95% CI, 1.46-3.27), mother reporting more difficulty balancing responsibilities (OR 2.32, 95% CI, 1.55-3.47), the child being exposed to a second language (OR 1.88, 95% CI, 1.37-2.58), the child experiencing sleep onset delays (OR 1.55, 95% CI, 1.06-2.26), the child experiencing frequent night waking (OR 2.95, 95% CI, 2.13-4.10) and having daily screen time of at least 1 hour (OR 1.85, 95% CI, 1.34-2.54).

**Conclusion:** Strategies enabling parents of newborns to establish healthy sleep habits, engage in daily play, attend informal playgroups and limit screen time, positively impact children's development. Strategies aimed at identifying and supporting mothers of young children experiencing poor mental health may also improve children's development.

**Keywords:** maternal mental health

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#### **A novel community-based intervention to improve access to support for perinatal women through peer facilitation: a feasibility study with external pilot**

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**Background and Aims:** Up to 50% of pregnant women living in areas of high socio-economic deprivation in developed countries are at risk of developing depressive symptoms. Feeling well-supported perinatally can facilitate good mental health. A brief intervention with two sessions, one antenatal and one postnatal, consisting of three evidence-based components: (i) support from a non-professional peer; (ii) information about existing local community services; and (iii) individualized help with identification of needs and If-Then planning to implement personalized plans was utilized to facilitate access to support and resources. The aim was to evaluate feasibility and acceptability from perspectives of perinatal women and maternity care providers. Preliminary indications of effectiveness in terms of uptake of resources and mental health were assessed.

**Methodology:** Women early in pregnancy were recruited from community-based antenatal clinics and randomized to intervention (peer facilitation to access support) or control groups (resource information leaflet). Interviews and focus groups were conducted with participants, maternity care providers, and peer facilitators to assess perspectives. Fidelity of intervention and retention of peers were recorded. Recruitment and retention of participants together with acceptability of outcome measures which were the use of community services in pregnancy by 34 weeks gestation and 6 months postnatally were assessed together with measures of mental health and wellbeing and plan implementation.

**Results:** Women welcomed the intervention, found it helpful in planning access to services relevant to their needs and following up on their plan. Staff strongly supported the intervention philosophy and easily integrated this into services. Intervention fidelity was high and peers retained. 126 women were recruited and randomized, 85% of the sample lived in the most deprived 1% of the UK. Recruitment was 39% rising to 54% after midwifery liaison. 65% were retained at 6 months postnatal. Positive trends in the use of community services particularly postnatally were shown (despite this not being powered to detect difference) but there were no group differences in mental health/wellbeing.

**Conclusions:** This novel community-based intervention was well received by women and staff. Women from areas of very high deprivation can be recruited randomized and retained. Preliminary outcome data are encouraging. Effectiveness needs systematic evaluation.

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### Screening for PPD at well-child visits: Making headway in Rhode Island, USA

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**Aim:** To describe a year-long initiative undertaken by 7 major pediatric practices in Rhode Island, USA, to increase rates of screening for maternal depression.

**Background:** Pediatricians are the primary “captive audience” provider group in regular contact with postpartum women throughout the first 12 months of their infant’s lives. Historically, pediatricians have been reluctant to screen for maternal depression because the mother is “not their patient” and many adhere to the belief that it is out of their professional purview. Most pediatricians, however, when presented with findings that infant development is influenced by maternal mental health, recognize the value of developing feasible screening and referral practices for their patient’s mothers. A number of studies have examined strategies for maternal depression screening in pediatric settings in recent years (Waldrop et al., 2017). In Rhode Island, USA, state and local funding was obtained to pilot a Postpartum Depression (PPD) screening and referral initiative in a sample of seven pediatric practices over a 12-month period from April 2017-March 2018.

**Methodology:** The EPDS was administered to mothers during well child visits at 1, 2, 4, and 6 months. Rates of screening and referral were compared to baseline screening and referral rates prior to initiation of the project. Relatedly, the rates of referral, from pediatric practices, to the state’s primary center for perinatal women’s mental health were compared to baseline referral patterns before the initiation of this project. Interdisciplinary representatives from the 7 practices met quarterly to report on progress.

**Results & Conclusion:** At baseline, the 7 pediatric practices ranged in PPD screening rate from 0% to 47%. At the 3rd quarter data collection, the rate of routine screening across the practices significantly increased, and ranged from 74% to 100%. During this time period, the state’s primary center for treating peripartum mood disorders saw an increase in referrals from pediatric practices. Consistent with recent reports (Olin et al., 2016; van der Zee-van der Berg et al., 2017), the success of this initiative underscores the potential for making progress in working with pediatricians as partners in the identification of mothers suffering from PPD.

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### Integrating primal wisdom with modern science and practice as a global strategy for mothers, infants, families and communities

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**Aim & Background:** This presentation draws on my experience with the Himba, an indigenous culture of Northern Namibia. It suggests ways that we can learn from primal wisdom practices to develop attunement, empathy and compassion, fundamental for mothers and children to thrive, to integrate them with resonating scientific discoveries of epigenetics, interpersonal neuroscience, attachment and mindfulness theory. It challenges our understanding of pre and perinatal processes and the crucial impact of human virtues through cross-cultural comparisons. It takes a look at maternal and infant health in the context of our lives and society and explores primal wisdom as the best available window into the social lives of our ancestors, sustaining uncomplicated birth, motherhood and secure attachment, and uses them as a model of sustainability to integrate with modern sensibility.

**Methodology:** Journaling, observations and interviews, images and stories of integrated and shared motherhood and childcare offer us insights into the quest of how connected in our society we are to motherhood and how aware of the impact of pre and perinatal mental health on child development and society. Through connecting with and understanding indigenous mothers and children through the body language and implicit processes, I could have a palpable experience of primal wisdom and intersubjectivity at play. The Himba manifested an innate capacity for empathy, intuitive understanding, morality and cooperation, suggesting these develop in early life through intergenerational transmission of pre/perinatal practices and communal care, and are foundation of maternal and infant wellbeing, and a peaceful society.

**Results:** This empirical research introduces an expanded view of human development and mental health, which begins before conception and moves through early childhood in an unbroken continuum in care. I explain how pregnancy, birth and developmental trauma, a product of our society, can impact parents’ wholeness and consequently the relationship with their baby and his development prior to birth, and suggest ways for prevention and healing.

**Conclusions:** Small-scale societies like the Himba teach us the vital importance of a compassionate community and shared care in supporting maternal and infant mental health. This presentation is an urgent call for pre/perinatal healthcare professionals to recreate the village and integrate primal wisdom and related interpersonal neuroscience, attachment theory and pre/perinatal psychology in their trainings for the wellbeing of mothers, infants, families and communities. It calls for a more humane approach to maternal care beginning from pregnancy to prevent maternal suffering and developmental trauma.

**Keywords:** Perinatal-infant mental health, primal wisdom, motherhood, social support, community, pre/perinatal healthcare professionals, pregnancy, shared childcare, developmental trauma

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### Update on epigenetic biomarkers of postpartum depression

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**Objective:** Postpartum Depression (PPD) affects 15% of all women and 30% or more of women with pre-existing mood disorders. We sought to identify prospective epigenetic biomarkers of PPD.

**Methods:** We originally investigated estrogen mediated epigenetic reprogramming events in the hippocampus and risk for PPD using a cross species translational design and identified two loci, HP1BP3 and TTC9B, which were modified by estrogen exposure in a rodent model and were also prospectively predictive of PPD in antenatal blood in a sample of 51 pregnant women with pre-existing mood disorders. We then used a statistical model to predict PPD status in three independent samples: 51 pregnant women with pre-existing mood disorders, 240 pregnant women without a previous psychiatric diagnosis and 88 postpartum women without a previous psychiatric diagnosis for whom Edinburgh Postnatal Depression Scores (EPDS) were available. Most recently a prospectively followed replication sample of 48 women both with and without a history of a mood disorder was examined.

**Results:** Modeling DNA methylation of the HP1BP3 and TTC9B genes resulted in an AUC of 0.81 (95% CI: 0.69-0.92, P<5x10<sup>-4</sup>) in the sample of 51 women with pre-existing mood disorders and an AUC of 0.81 (95%

CI: 0.68-0.93,  $p=0.01$ ) in the sample of 240 women without a previous psychiatric diagnosis. Finally, our biomarkers predicted EPDS scores > 13 in the sample of 88 postpartum women with an AUC of 90% and in the sample of 48 women both with and without a mood disorder with an AUC of 85% (newest data available will be presented).

**Conclusions:** These data add to the growing body of evidence suggesting that PPD is mediated by differential gene expression and epigenetic sensitivity to pregnancy hormones and that antenatal epigenetic variation at the genes HP1BP3 and TTC9B is predictive of PPD. Future work may result in a test predictive of postpartum depression.

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#### **The BDRN pregnancy study: Identifying risk factors for severe postpartum episodes in women with bipolar disorder**

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**Aim & Background:** While it is well established that women with bipolar disorder are at high risk of severe postpartum episodes there have been few prospective studies focused on establishing the factors that can individualize the risk.

**Methodology:** The Bipolar Disorder Research Network (BDRN) pregnancy study is a prospective longitudinal study recruiting women with bipolar in pregnancy and following them through the postpartum period. Lifetime psychopathology is assessed via semi-structured interview (Schedules for Clinical Assessment in Neuropsychiatry) during the third trimester of pregnancy with a follow-up interview to assess perinatal psychopathology at 12-weeks postpartum. Data are also collected on obstetric factors, medication use, sleep and psychosocial factors related to pregnancy and a blood sample is taken for genetic analysis. Interview data are supplemented by clinician questionnaires and case-note review.

**Results:** We have analyzed data from the first 102 women recruited with overall 59% experiencing a perinatal recurrence, 42% an episode with onset in pregnancy, 42% an episode with onset within 12 weeks of childbirth and 38% an episode with onset within 6 weeks of delivery. Moreover, 21% of women experienced an onset of mania, mixed episode or affective psychosis corresponding to the traditional diagnostic label of postpartum psychosis.

Preliminary analysis has indicated that severe postpartum relapse was more frequent in women with bipolar-I than bipolar-II disorder, women with a history of psychotic episodes and women with a history of postpartum mood disorder. Women experiencing mood episodes in pregnancy were more likely to have an episode following delivery. Interestingly, in our initial analysis, being on mood stabilizing medication in the immediate postpartum did not influence which women experienced postpartum psychosis.

**Conclusions:** Rate of perinatal relapse in our sample is high, despite the majority of participants being under the care of specialist services and receiving prophylactic medication. We are continuing to recruit to the study in order to provide data to individualize the risk of recurrence and help women and their clinicians make the difficult decisions around pregnancy and childbirth, not least with regard to continuing or stopping medication.

**Keywords:** Bipolar disorder, perinatal mood episodes, postpartum psychosis, postnatal depression

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#### **Embedding maternal mental health into public health: Mental health care in the perinatal period – The 2017 Australian Clinical Practice Guideline**

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**Aim & Background:** Australia has long taken a public health approach to maternal mental health in the perinatal period. This was embodied in the 2011 Clinical Practice Guideline which recommended universal depression screening and psychosocial assessment both in pregnancy and again postpartum, with a particular focus on maternal depression and anxiety. The Aims of the 2017 Guideline included: 1) an update of methods of psychosocial assessment; 2) a greater focus on the management of complex women especially those with borderline personality disorders; 3) an update on the harms section of medication use in pregnancy; 4) to begin to explore digital methods of Guideline implementation. We detail the key Guideline recommendations and discuss their implications in the delivery of best practice, briefly touching on how this can be optimized by means of digital technologies.

**Methodology:** Employing the rigorous GRADE method for Guideline development, a systematic literature review was undertaken up to July 2017. Where quality evidence base was not available, guidance was underpinned by consensus expert opinion.

**Results:** The 2017 Guideline supports primary, maternity and specialist providers in the assessment and management of mental health conditions in the perinatal period. It continues to include assessment of the mother and infant interaction and assessment of risk of harm to both. In terms of psychosocial assessment, the guideline now recommends—where appropriate - use of a structured tool the Antenatal (Psychosocial) Risk Questionnaire (ANRQ) in addition to the EPDS. While there can never be RCTs examining the harms of fetal psychotropic medication exposure, there are a growing number of observational and register studies of SSRIs (especially examining offspring outcomes in terms of Autism Spectrum Disorder and attentional disorders), providing some, though methodologically limited, evidence. A chapter on borderline personality disorder and emotional dysregulation—presentations that commonly emerge or intensify in the perinatal period—was added as these are especially challenging for clinicians, impact the mother-infant relationship, and necessitate specific and clear guidance and additional staff support.

**Conclusions:** The Guideline was approved by Australia's National Health and Medical Research Council (NHMRC) and has informed the development of South African and Canadian Clinical Practice Guidelines.

**Keywords:** perinatal mental health, psycho-social assessment, clinical practice guideline

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#### **DREAM BIG Collaboration: Prenatal stress and childhood psychopathology**

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**Aim & Background:** DREAM BIG consists of 4 population cohorts: the Avon Longitudinal Study of Parents and Children (ALSPAC), the Generation Rotterdam (Generation R) study the Maternal Adversity, Vulnerability and Neurodevelopment (MAVAN) study and the Growing Up in Singapore Towards healthy Outcomes (GUSTO) study. The aim of the collaboration is to investigate the consistency across different cohorts the relationship between prenatal stress and child development in particular focusing on the role of gender and genetic risk. The analyses presented here examine the relationship between prenatal stress (environmental adversity/maternal psychopathology) and child psychopathology simultaneously examining the specific and general psychopathology to account for the complexity of child psychopathology

**Methodology:** We developed models based on factor analyses for exposure and outcome in three of the four cohorts (ALSPAC,

GEN R and MAVAN) as children in GUSTO were still too young to be comparable to other cohorts. We compared bifactor models, which included general psychopathology, with unifactor which only had specific domains of psychopathology in the exposure (prenatal stress) or outcome child psychopathology. We used model fit statistics to compare models and chose the best across the three cohorts. We examined the relationship between prenatal stress and child psychopathology using regression models. Multiple imputation was used to account for missing data.

**Results:** The bifactor models together with a methods factor (who undertook rating) improved model fit consistently across the three cohorts. Both prenatal maternal psychopathology and prenatal environmental adversity were strongly related to childhood psychopathology with the strongest associations being with childhood general psychopathology rather than specific symptoms. Symptoms indicative of externalizing disorders were not associated with prenatal stress exposure.

**Conclusions:** The effect of prenatal stress on child psychopathology appears to operate through effects on general risk for psychopathology and other risk factors may therefore determine the path to specific disorders.

**Keywords:** prenatal stress maternal psychopathology child psychopathology

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### Maternal prenatal distress, mother-infant dyadic emotional availability and infant development: Findings from US and Australian cohorts

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**Background and aims:** Security of attachment between mother and infant is central to infant development. A bi-directional interpretation may explain this, where advanced cognition and language in children facilitates bonding. Prenatal stress can disrupt infant neurocognitive development (Monk et al., 2013), though may be moderated by mother-infant bonding, posited as a 'buffer' for effects of early life adversity (Bergman et al., 2010). We sought to examine associations between maternal prenatal stress, dyadic emotional availability (EA), and infant language development, across geographically and socially diverse cohorts.

**Methodology:** Pregnant adolescents (age 15-19 years; N=78) of predominantly low-SES were recruited in New York City. Pregnant women (mean age 32.4, n=320) were recruited in Sydney, Australia; this was predominately a high-SES sample. At 14-months of age in the US and 12-months in Australia, infants were assessed with the Bayley Scales of Infant Development, and recorded mother-infant interactions were coded using the EA Scales (Biringen, 2008).

In the Australian cohort, higher scores were seen compared with the U.S cohort for Bayley age-corrected cognitive ( $t=-11.63$ ,  $p<.001$ ) and language scales ( $t=-10.46$ ,  $p<.001$ ), and global EA ( $t=-7.693$ ,  $p<.001$ ). In both cohorts, maternal distress during pregnancy was negatively

associated with infant language ability. In the U.S cohort, pregnancy-specific stress (not generalized stress) was negatively associated with infant language ability ( $r=-.311$ ,  $p<.01$ ); this remained following adjustment for emotional availability ( $r=-.324$ ,  $p<.05$ ). In the Australian cohort, prenatal anxiety (not generalized stress) was negatively associated with infant language ability ( $r=-.228$ ,  $p<.001$ ); this remained following adjustment for EA. Global EA was positively associated with infant language development ( $r=0.186$ ,  $p<.001$ ) in the Australian cohort only. Stratifying by infant sex revealed this association was present only for boys ( $r=0.198$ ,  $p<.01$ ).

**Conclusions:** Drawing together findings from these cohorts suggests specific types of maternal prenatal stress are associated with decrements in infant language development. Dyadic EA — the postnatal social environment — had a positive effect on language development, though this was not observed among children born to at-risk adolescents in the US, whose infants were also more developmentally delayed.

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### Training in perinatal mental health for health practitioners

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**Aim & Background:** With the rapidly growing understanding of the importance of healthy early neural development in the infant and the interdependent on positive attachment with the principle caregiver, the need for training is highlighted. In the UK, Health Visitors are one of the best placed professionals to support parents with their perinatal mental health in later pregnancy and postnatally. Through delivery of their universal service they can provide anticipatory guidance, assess for risk, assess for the presence of mental illness, manage mild to moderate perinatal mental illness and refer on to more specialist care.

**Methodology:** The training offers an eclectic mix of learning styles. The process of learning is influenced by the individual's personality, background, both social and professional, ingrained values and attitudes. This training incorporates the learning styles developed by Honey and Mumford (2000), which have been directly expanded from Kolb's Theory, formulated in the 1980s. The formats include role play, problem solving exercises and discussion, to appeal to the 'activists' or the gregarious participants who thrive on new challenges. References to evidence and research is designed to accommodate the 'theorist' participant whose philosophy encompasses rationality and logic and who prefers to have concepts and facts underpinning the learning process.

The needs of the 'pragmatist' are not ignored as, the theoretical frameworks may suit the theorists, but the 'pragmatist' also needs to understand their application to practice. The learning style of the 'reflector' is also captured. They tend to learn with caution and collect copious data in order to formulate a conclusion, considering the possible implications or repercussions, hence the use of self-analysis questionnaires and open discussion, provides an opportunity to develop theirs and others opinions

**Results:** n/a

**Conclusions:** The training in perinatal mental health is evidence based and designed to lead to health visiting service and allied professionals, to have the necessary skills to be better equipped to provide prompt access, support and early referral as necessary, from which the whole family will benefit.

**Keywords:** training, evidence based

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### Prevalence and determinants of common antenatal mental disorders among women in India: A systematic review

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**Background and Aim:** Maternal mental health status is a significant public health problem as it influences both maternal and child health. Perinatal research in India has predominantly focused on postnatal

depression. The aim of this systematic review was to evaluate the available evidence about the prevalence, nature and determinants of common antenatal mental disorders (CAMD) among women in India.

**Methodology:** We used a systematic strategy for identification, screening and eligibility of the publications. Medline- Ovid, Psychinfo, Embase were searched for peer-reviewed English language papers published before Nov 17, 2017. Study quality was assessed using Kmet's Critical Assessment. Where possible data were pooled in order to make comparisons based on study methodology, location, type and severity of disorders.

**Results:** In total, 1892 publications were identified. 23 met inclusion criteria and were reviewed. Most studies focused on mood disorders with very limited investigation of anxiety and stress. Prevalence estimates of clinically significant antenatal psychiatric morbidity varied widely (7.6-65%), reflecting the study location, participant circumstances and instruments used. The most commonly identified determinants were social factors: unintended or unwanted pregnancy, poor quality of relationship with the intimate partner, domestic violence, financial disadvantage, having a female fetus, history of abortion, and fear of childbirth.

**Conclusions:** CAMD are highly prevalent amongst women in India. The data indicate that mental health should be considered in routine maternal health care in India, as it is in high-income countries. In addition to population-based strategies to improve women's circumstances, screening and timely referral for expert assessment and care are warranted.

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#### Human rights, maternity, asylum and mental health illness in Stoke-on-Trent, UK

Kristina Hofberg<sup>1</sup>, Megan Illidge<sup>1</sup>  
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**Aim & Background:** The research is a review of current mental health care provision for female asylum seekers during the perinatal period in the Stoke-on-Trent area in England, UK. The National Health Service in England remains free at the point of delivery to most people in UK. However, pregnant refugees and asylum seekers are fearful of approaching maternity services. 'Failed' asylum seekers are not entitled to access the NHS without charge. However, many have little capacity to honor the invoices that are delivered to them for health care needs. We know this vulnerable group of women and their infants have a poor maternity outcome including mental ill health illness. The authors believe this question of access to maternity health care and perinatal mental health care in this dispersal area has not been investigated before.

**Methodology:** This care provision researched and analyzed in light of human rights legislation and in particular the Convention on the Rights of Persons with Disabilities (CRPD) which was ratified and came into force in 2008. UK is a signatory. This desk top study views the data on maternities and referrals to the specialist perinatal mental health day unit through the lens of the Human Rights Act.

**Results:** Human rights legislation is unfamiliar to mental health workers and conflicts with mental health training in the UK. Asylum seekers in Stoke-on-Trent, an asylum dispersal area, are under-represented within specialist perinatal mental health services in Stoke.

**Conclusions:** Vulnerable women and their infants seeking asylum in UK experience violations of their human rights in the Stoke-on-Trent area of UK.

**Keywords:** CRPD, asylum seeker, refugee, Stoke-on-Trent

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#### Assessing and managing risk online: A clinician's perspective on internet-delivered intervention, 'MUMentum', for perinatal distress, anxiety, and depression

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**Aim & Background:** Convenient and accessible, evidence-based interventions that are tailored to the unique issues and challenges of the perinatal period are required in order to improve help-seeking amongst mothers experiencing anxiety and/or depression during this period. No evidence-based, low-intensity online interventions are currently available for women experiencing symptoms of perinatal anxiety and/or depression. Yet delivering treatment via the internet to high-risk populations requires careful consideration and appropriate safety protocols. Do we exclude women from these studies based on actual risk or on our own fear of negative outcomes?

**Methodology:** Two randomized controlled trials were conducted to evaluate the efficacy of two brief internet-delivered cognitive behavioral programs in reducing clinical symptoms of perinatal distress, anxiety, and depression. Participants were randomized to a treatment group or treatment-as-usual control group. As this study aimed to evaluate the efficacy and acceptability of a self-help intervention, no therapist support was provided only risk monitoring by the treating clinician.

**Results:** The process of conducting research in this population (e.g. recruitment, risk management, adherence), case studies, and how this program aims to be used in the future will be discussed from the perspective of the treating clinician. Preliminary results suggest that while the majority of participants reported moderate to severe anxiety and depression symptom severity, less than 20% reported suicidal ideation requiring a risk assessment at application.

**Conclusions:** This presentation will provide the audience with insights into conducting clinical research into online treatment programs for perinatal women, managing suicidal risk, and how internet-delivered interventions such as 'MUMentum' can be implemented into everyday clinical practice.

**Keywords:** anxiety, depression, online, treatment, internet

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#### Challenges in perinatal psychiatry for the young psychiatrist: Private practitioner's perspective

Shubhangi Dere

**Introduction:** Private-setup psychiatry has faced lots of difficulties amidst opportunities. The same apply to perinatal psychiatry. My interest to work in the field of perinatal psychiatry was transformed into initiative after receiving training at the Mother-Baby Unit at NIMHANS. Following are the challenges and opportunities faced in my short journey.

**Origin:** The specialty services focusing on psychiatric issues of women in reproductive age-groups are run at my clinic establishment located in the suburbs of Mumbai, India. The node consists of middle- to upper-middle socio-economic class belonging to diverse religions and cultures.

**Challenges faced:** Stigma, discrimination, non-acceptance, and minimization of the value of psychiatric management, are the general challenges faced by psychiatric services which apply to specialty services, including perinatal psychiatry.

Biggest challenge was to spread awareness about the existence of such services and to develop inter-specialty collaborations. Collaboration with gynecologists, pediatricians, and physicians gradually started to establish after repeated meetings, and conducting a talk addressing gynecological society of the region regarding awareness of perinatal psychiatric problems. It was observed that there exists a trend of crisis-oriented attention to perinatal problems and defensive practice through 'referring complicated cases (mother with severe mental illness) to higher center to prevent legal consequences at nursing home' was prevalent in private practice. There is a need to change this trend of providing care during crisis, to early identification through regular screening, intervention, prompt referral and emphasizing preventive and promotive approach.

Lack of resources and manpower including infrastructure (space constraints, admission facilities) trained full-time psychiatrists, clinical psychologists, psychiatric social workers, and psychiatric nurses, makes it challenging for inpatient care and rehabilitation of existing out patients.

**Opportunities:** The society is becoming aware of their mental health needs and there is a trend towards recognizing the need for specialty services. The web presence, increasing awareness through patient awareness leaflets, addressing doctor's association forums, conducting patient education programs in the communities, and celebrating days and events specific to mental health are certain opportunities to grow and spread the information to the society.

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#### **Infant social experiences in challenging socioeconomic settings: A cross-cultural comparison**

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**Aim & Background:** Millions of children in low/middle-income countries (LMICs) fail to achieve their developmental potential because of poverty (Grantham-McGregor et al., 2007). Promoting the quality of mother-infant social engagements can improve child outcomes in LMICs (Cooper et al., 2009; Murray et al., 2016). There is scarce evidence, however, regarding the actual quantity of social stimulation infants receive in LMICs. Recent research (Otto et al., 2017) found impoverished circumstances not to affect maternal caregiving behaviors (i.e., tactile/motor stimulation, nursing, body contact) and face-to-face positioning, but did not assess whether the latter was used for social interactions. The current study compares mother-infant social engagements, in adverse socioeconomic circumstances in a LMIC to those in more affluent settings.

**Methodology:** The study included 16 mother-infant dyads from Reading (UK) (R), and 16 from Stellenbosch (South Africa) (S), both urban middle-class settings, and 19 dyads from Khayelitsha (K), an impoverished peri-urban settlement outside Cape Town (South Africa). Fifteen minutes of unstructured daily activities were video-recorded in dyads' homes on multiple occasions, at 2-3 months postpartum. The video-recordings were coded to quantify the time mothers spent: close to the infant; in a physical position enabling face-to-face exchanges; in active social engagement with the infant.

**Results:** Mothers in K spent less time close to their infants, compared to R and S ( $p$ 's < .033; 51.0%, 71.4% and 65.9%, respectively). R and S did not differ.

When close to their infant, all mothers spent similar proportions of time in a face-to-face position (K: 83.3%; R: 86.2%; S: 85.1%).

When in face-to-face position, K mothers spent less time than R and S socially engaging their infant ( $p$ 's < .004; 30.4%, 53.0% and 67.8%, respectively). R and S did not differ.

**Conclusions:** Compared to urban middle-class mothers, those from Khayelitsha spent less time close to their infants, and less time engaging them socially, when face-to-face. Determining the reasons for this variability (e.g., cultural beliefs, or adversity and associated stress) would help maximize the sensitivity and effectiveness of future interventions aimed at supporting mother-infant social interactions and child outcomes.

**Keywords:** low- and middle-income country, early social interactions, parenting

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#### **The genetic basis for postpartum depression**

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**Aim & Background:** Postpartum Depression (PPD) affects 15% of all women and 30% or more of women with pre-existing mood disorders. We sought to identify the underlying genetic basis of PPD.

**Methodology:** We have conducted a genome-wide linkage and association study in families with pre-existing mood disorders, as well as candidate gene studies for PPD in women both with and without pre-existing mood disorders. We will present these data and a summary of the existing literature exploring the genetic basis of PPD.

**Results:** Evidence is strong for the genetic basis for PPD, with positive associations found in family studies and in several genes associated with Major Depression (including the serotonin transporter, Catechol-O-methyl transferase, and Monoamine Oxidase genes) as well as genes involved in estrogen signaling (including the Estrogen receptor 1 gene) but only when PPD onset is shortly after delivery. One gene identified through a genome-wide linkage and association study, HMCN1, has been replicated in a candidate gene study. Results of a replication cohort examining the association between HMCN1 and estrogen receptor 1 polymorphisms and PPD (with the most up-to-date data) will also be reported.

**Conclusions:** Our findings underscore the need for additional studies with larger samples, as well as the crucial importance of timing in the definition of PPD for genetic studies. Genes involved with estrogen signaling as well as genes previously associated with Major Depression appear to be associated with PPD in women both with and without pre-existing mood disorders.

**Keywords:** postpartum depression, genetics, estrogen receptor 1

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#### **The impact of surrogacy on infant mental health: Review of the consequences from an ecosystemic approach**

Ibone Olza

**Aim & Background:** Surrogacy presents many challenges for the mental health of pregnant women and their infants. Evidence based recommendations regarding the care of newborns are not respected in most surrogacy arrangements. Research regarding psychological aspects of surrogacy for all parts involved is scarce. Some of the studies regarding the possible consequences of surrogacy for the maternal and infant mental health show common biases and flaws. Aims: critical analysis of the current evidence regarding the mental health consequences of surrogacy for the infant

**Methodology:** Literary review with an ecosystemic framework

**Results:** Possible effects on infant mental health may include and addition of: maternal detachment during pregnancy, possible intrauterine exposure to toxic agents or maternal depression and anxiety, medicalized birth, premature or induced labor, maternal separation at birth, maternal loss, neonatal stress and hospitalization, loss of breastfeeding, grieving over maternal bond.

**Conclusions:** From an ecosystemic perspective, the experience of surrogate infants may resemble that of infants whose mother dies during childbirth and involve an addition of losses.

**Keywords:** surrogacy, psychological, infant mental health, ecosystemic

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#### **Prevalence and determinants of domestic violence among pregnant women in a low resource setting in South Africa: A facility-based, mixed methods study**

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**Aim & Background:** Rates of violence against women are reported to be highest in Africa compared to other continents. Violence during pregnancy is of particular concern due to the negative implications for both the

mother and child. We aimed to determine associations between mental illness, demographic, psychosocial and economic factors with experience of intimate partner violence (IPV) among pregnant women in a low resource setting in South Africa.

**Methodology:** This study recruited 376 adult women attending antenatal services at a primary-level maternity facility. Demographic, socioeconomic and psychosocial data were collected by questionnaire. The Expanded Mini-International Neuropsychiatric Interview (MINI) Version 5.0.0 was used to assess mental health status and the Revised Conflict Tactic Scale (CTS2) used to assess IPV in the six months prior to the study. Non-parametric tests, Wilcoxon sum of rank test, Fisher Exact and two sample T test and multicollinearity tests were performed.

Descriptive, bivariate and logistic regression analyses were conducted to identify associations between the outcome of interest and key predictors. A probability value of  $p \leq 0.05$  was selected. A thematic content analysis, describing contextual factors pertaining to forms of domestic violence, was conducted of 95 counselling case notes.

**Results:** The prevalence of IPV was 15% of the total sample population. Women who were food insecure, unemployed, in stable but unmarried relationships, had experienced past abuse and were not pleased about the current pregnancy were more likely to experience intimate partner violence than those who were food secure, married, had no history of abuse and were pleased to be pregnant. MINI assessed mental health problems and a history of mental illness were significantly associated with IPV. The qualitative analysis revealed that domestic violence within the household was not limited to intimate partners and, domestic violence in this context was often perceived as 'normal' behavior by the participants.

**Conclusions:** This study contributes towards a greater understanding of the risk profile for IPV amongst pregnant women in low-income settings. Adversity, including food insecurity and mental ill-health are closely associated with IPV during the antenatal period. These findings are relevant for intervention planners and advocates against domestic violence.

**Keywords:** domestic violence, intimate partner violence, food insecurity, low and middle income, South Africa, pregnancy

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### Understanding mental health needs of women veterans during the peripartum period

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**Learning objective:** To improve knowledge and understanding on perinatal health issues in women veterans

**Teaching methods:** Background Female veterans constitute 8% of the veteran population in US military services and they are projected to reach 11% by the year 2020.1 Women aged 18 to 44 years are the fastest growing demographic of new VA health care users. Research suggests that women Veterans who are pregnant are more likely to be diagnosed with major psychiatric condition(s) in comparison to women Veterans who are not pregnant.2 Psychiatric illness during the peripartum period is associated with negative health outcomes.3 Very little is known about the unique mental health issues affecting female veterans during pregnancy and the postpartum period.4 Aim The overarching aim of this study is to collect preliminary evidence on the mental health needs of women who utilized the VA North Texas Maternity program. We hypothesized that the prevalence rates of psychiatric conditions in pregnant women would be similar to rates seen in non-pregnant women seeking care at the VHA and that pre-pregnancy health status would predict mental health status during pregnancy and postpartum period.

**Methodology:** This is a retrospective chart review of women who completed the national study COMFORT (CIRB 14-27) on VA Maternity care coordination. This sub-study IRB approved locally at VA North Texas Health Care System. We reviewed 23 subjects who completed the

COMFORT study between February 2016 and December 2017. Data were collected on demographics, clinical diagnoses (using ICD 9 ad 10 codes), treatment history, and service utilization. Results The mean age of the sample was 32 and they were of predominantly (52%) of Caucasian race. Seventy percent of sample was married and the vast majority held either part-time or full-time jobs. Thirteen percent of sample had service-connected disability. Nearly 70% of women had at least one psychiatric condition throughout the perinatal period with major depression as the most prevalent (40%) condition. Women experienced mild clinical symptoms and symptoms did not change across different periods [ $F(2, 20) = 1.161, p > 0.05$ ].

**Conclusions:** This preliminary study of VA maternity care showed that the majority of women had at least one documented psychiatric condition and were symptomatic during the pregnancy and postpartum periods. Results of this study underscores the relevance of access to mental health services during the perinatal period. Future studies are needed to guide mental health services to improve overall outcomes in the perinatal period.

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### Efficacy and safety of Brexanolone injection, a GABA-A receptor modulator, in women with postpartum depression: Integrated analyses of clinical data

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**Background and aims:** Postpartum depression (PPD) is a common medical complication of childbirth, impacting an estimated 10-20% of women giving birth each year globally. Brexanolone injection is a proprietary intravenous formulation of allopregnanolone and is a positive allosteric modulator of  $\gamma$ -aminobutyric acid A (GABA-A) receptors. Three double-blind, randomized, placebo-controlled studies examined the efficacy and safety of brexanolone injection in women with PPD across a range of disease severities.

**Methodology:** Pooled analyses were conducted from 3 pivotal studies (Study A: NCT02614547; B: NCT02942004; C: NCT02942017) in women aged 18-45 years,  $\leq 6$  months postpartum, with a diagnosis of PPD (defined here as a major depressive episode no earlier than third trimester and  $\leq 4$  weeks following delivery) by the 17-item Hamilton Rating Scale for Depression (HAM-D;  $\geq 26$  in Studies A and B; HAM-D 20-25 in Study C). Subjects were randomized to receive 60-hour infusions of placebo (PBO) or brexanolone injection 90  $\mu\text{g}/\text{kg}/\text{hour}$  (BRX90) or 60  $\mu\text{g}/\text{kg}/\text{hour}$  (BRX60). Efficacy measures included the HAM-D and Clinical Global Impression-Improvement (CGI-I). Safety was assessed throughout the study.

**Conclusions:** In these pivotal studies, subjects were dosed as follows: 102 BRX90, 38 BRX60, and 107 PBO. Across a range of disease severities, based on the pooled data, at Hour 60 (primary endpoint in all studies), there were significantly larger mean reductions from baseline in HAM-D total scores with BRX90 ( $-17.0$ ;  $p < 0.001$ ) and BRX60 ( $-19.1$ ;  $p < 0.001$ ) vs PBO ( $-12.8$ ). Significant mean differences from PBO were maintained through Day 30 (BRX90,  $-2.6$ ,  $p = 0.021$ ; BRX60,  $-4.7$ ,  $p = 0.004$ ). Brexanolone injection groups had higher rates of HAM-D responders ( $\geq 50\%$  reduction in total score) than PBO at Hour 60 (BRX90  $p = 0.0003$ ; BRX60  $p = 0.0007$ ). Brexanolone injection groups had significantly better CGI-I responses vs PBO at Hour 60 (both BRX90 and BRX60  $p < 0.001$ ). Common adverse events included headache, dizziness, and somnolence. Across PBO-controlled studies in PPD,

brexanolone injection showed rapid and sustained (at Day 30) HAM-D reductions and was well tolerated. A planned 2018 NDA submission will seek approval of brexanolone injection as a pharmacotherapy specifically indicated for PPD.

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#### Improving perinatal depression care in obstetric settings: PRogram In Support of Moms (PRISM)

Nancy Byatt<sup>1</sup>, Linda Brenckle<sup>1</sup>, Padma Sankaran<sup>1</sup>, Kathleen Biebel<sup>1</sup>, Linda Weinreb<sup>1</sup>, Jeroan Allison<sup>1</sup>, Tiffany A Moore Simas<sup>1</sup>

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**Background:** Perinatal depression, affects upwards of 1 in 7 women. Despite association with negative maternal, birth, and offspring outcomes that are mitigated with effective treatment, perinatal depression is under-recognized and under-treated. Professional organizations recommend universal screening in the context of systems ensuring effective diagnosis, treatment, and follow-up; yet patient, provider, and systems barriers exist to providing timely, appropriate, and sustainable care. Integrating depression care into obstetric practices holds promise for adequately addressing depression in perinatal women. The goal of this study was to implement the PRogram In Support of Moms (PRISM), aimed at improving depression screening, assessment and treatment in obstetric settings.

**Methods:** We developed and pilot tested PRISM to create an intervention that is proactive, multifaceted, and practical. Ten Ob/Gyn practices were recruited and randomized. All practices received enhanced usual care which consisted of access to immediate resource provision/referrals and psychiatric telephone consultation via a state-wide psychiatric consultation and care coordination program, the Massachusetts Child Psychiatry Access Program (MCPAP) for Moms. PRISM practices had access to MCPAP for Moms plus (1) clinic-specific implementation of stepped care, including training support and toolkits; and, (2) proactive treatment engagement, patient monitoring, and stepped treatment response to depression screening/assessment. PRISM was implemented in 5 practices over a 6-month time period.

**Results:** In the 5 PRISM practices, pre-implementation, 2 practices were screening consistently with a validated tool at three-time points, 1 at two time points, and 2 at one time point. Post-implementation, all 5 practices have implemented screening with a validated tool at three-time points. Pre-implementation, no practices were screening for bipolar disorder. All 5 implemented bipolar disorder screening in their practice workflow during implementation. Pre-implementation, 4 practices included limited education about depression at the initial nursing visit and all 5 practices greatly expanded depression post-implementation. Pre-implementation, 1 practice had a systematic approach to follow-up and monitor depressed patients as compared to 5 practices post-implementation.

**Conclusion/Discussion:** PRISM is a feasible approach to the integration of obstetric and depression care. PRISM may be able to optimize perinatal depression care in obstetric settings by addressing patient, provider, and systems level barriers.

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#### AWARD-WINNING POSTERS

The following posters were selected for awards during the conference.

##### Somatic symptoms as indicators of depression in pregnancy

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**Aim & Background:** Somatic symptoms during pregnancy are common and are considered to be largely normative. However, they may be a manifestation of underlying depression and anxiety, especially in cultures

where distress is expressed primarily through bodily symptoms. Here, we attempt to examine the profile of somatic symptoms in pregnancy in the second trimester (weeks 13-27), and their relationship to nutritional factors and psychological distress.

**Methodology:** The investigation was conducted as part of the Prospective Assessment of Maternal Mental health Study (PRAMMS). Information regarding 492 pregnant women attending a community antenatal center, in the second trimester of pregnancy, was studied. The assessments included sociodemographic and anthropometric details, Scale for Assessment of Somatic Symptoms (SASS) and Edinburgh Postnatal Depression Scale (EPDS).

**Results:** The mean age of these women was 23±3.5 years. 56% were from low income families, and 47% were primiparous. An EPDS score of 3 and above was considered to be significant (based on previous studies from similar cultures and a validity exercise using MINI performed as a part of the PRAMMS study on a comparable population). 19% had EPDS score of 3 or higher. The most common somatic symptoms were tiredness and lethargy (38%), weakness of body (37%), backache (32%), pain in extremities (30%), urinary frequency (26%), and pelvic pain (13.2%). Also, all of these symptoms seemed to independently correlate with EPDS total scores (p<0.001).

Overall, women with significant EPDS scores (>=3) tended to score higher on the SASS as well (U=7094.5, p<0.001). Somatic symptoms subscale scores (A-D, F) each seemed to independently significantly correlate with EPDS total scores (p<0.01). The anthropometric measures (BMI, HB, Mid-arm circumference) also independently significantly correlated with one another, and specific SASS subscale scores.

It may therefore be prudent to be watchful for depression, which may often be masked by somatic symptoms in pregnancy, particularly in cultures where expressing feelings is primarily through bodily symptoms.

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##### Antenatal depression and mentalization in mother-infant interaction at 12 months

Beatrice Allegri<sup>1</sup>, Vaheshta Sethna<sup>1</sup>, Rebecca Bind<sup>1</sup>, HolliMattoch<sup>1</sup>, Alessandra Biaggi<sup>1</sup>, Katie Hazelgrove<sup>1</sup>, Enrica Fantini<sup>1</sup>, Sarah Osborne<sup>1</sup>, Susan Pawlby, Susan Conroy<sup>1</sup>, Carmine Pariante<sup>1</sup>

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**Aim & Background:** A mother's capacity to treat her infant as a mental agent (mentalization) is critical for offspring development. While it is fairly well-known that postnatal depression affects maternal mentalizing capacity, only a few small studies have focused on antenatal depression. The present study examines the effect of antenatal depression on the maternal ability to treat an infant as a mental agent, as well as to attribute intent to her infant's vocalizations, emotions, cognitions and behavior during face-to-face mother-infant interactions at one year.

**Methodology:** We recruited 40 mother-infant dyads, 19 of whom were healthy controls and 21 of whom experienced major depressive disorder (MDD) during their pregnancy. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID) was used to diagnose MDD at 25 weeks gestation. In order to assess mentalization, a 3-minute video of playful interaction was recorded for each dyad. Videos were blindly rated using the Parental Cognitive Attributions and Mentalizing Scale (PCAMs), which assesses maternal speech during mother-infant interactions and incorporates specific mentalization categories from the 'mind-mindedness' construct. We compared the two groups of mothers for the proportion of mentalizing comments in the total speech, for the infant-focus speech and for the negative focus of the speech.

**Results:** Mothers with antenatal depression spoke significantly less with their infants compared with the healthy group (p=0.046) and were less able to imitate and mirror-back their child's behavior and vocalizations (p=0.033). However, the proportion of mentalizing comments and the proportion of overall negative comments towards the infants or themselves did not differ between the two groups (all p > 0.05).

**Conclusions:** In line with previous findings, there is some evidence that mothers who experience antenatal depression are more inclined to misinterpret their child's intent and experience. Contrary to expectations, these mothers do not engage in high levels of self-focus, and they do not report more negative communication toward the infant or toward themselves. As the PCAMs method does not assess infant behavior, which may affect maternal use of mentalizing and corrective speech, further assessments are needed.

**Keywords:** Antenatal depression, mentalization, mother-infant interaction, pregnancy

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### Grandmothers need attention too! - Focusing on the mental health of grandmothers in a Perinatal Psychiatry Service in India

Rupa Sanadi<sup>1</sup>, Kimneihat Vaiphei<sup>1</sup>, Sundernag Ganjekar<sup>1</sup>, Ameer Hamza<sup>1</sup>, Geetha Desai<sup>1</sup>, Harish T<sup>1</sup>, Prabha Chandra<sup>1</sup>  
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**Aim & Background:** It takes a village to raise a child. Especially in collectivist cultures, women's mental health during perinatal period is majorly influenced by her own family members. Grandmothers are the primary caregivers for the mother-baby dyad in South Asian countries especially in the first pregnancy. It is important for perinatal psychiatry services to include the views and understandings of the grandmother to enhance her ability to care for her daughter and grandchild at a time when psychiatric illness adds to the vulnerability in an already critical period. Aims of this study were to explore the concepts and themes that make up grandmother's understandings of prenatal and postnatal mental health. Additionally, their own worries and concerns about caregiving and relationships were also explored.

**Methodology:** In one year 60 grandmothers were included from IP/OP perinatal psychiatry services at NIMHANS. In-depth interviews were conducted among the grandmothers. Thematic analysis approach was used to derive at the concepts and themes.

**Results:** Across all participants specific set of themes were identified. The key concepts that contributed to grandmother's understanding and support of their daughters were related to myths and misconceptions about the daughters illness (magico-religious beliefs), her own mental health, her relationship problems with husband, conflicts with the daughter's husband and his parents, role strain due to caregiving of an infant and the patient, financial problems, worries about the future of her daughter, and cultural issues such as gender preference and discrimination if the daughter had a female baby. Several grandmothers needed psychological interventions or medication for depression.

**Conclusions:** In South Asian families, grandmothers play an important role as primary caregivers during the perinatal period. Grandmothers may themselves have psychological problems or role strain due to ongoing family conflicts or other health problems. Effective psychosocial interventions should be provided to them to understand about perinatal mental health and for the better outcome of their own mental health problems.

**Keywords:** perinatal mental health, grandmothers, qualitative study, psychosocial interventions

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### Transition to fatherhood: Women's and men's speech in perinatal period

Raphael Noel<sup>1</sup>, Laurent Castonguay<sup>1</sup>, Simon Lapointe<sup>1</sup>, Athénaïs Bouche-Florin<sup>1</sup>, Megan Turgeon<sup>1</sup>, Ariane Boyer<sup>1</sup>

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**Aim & Background:** The role of the father in child development, and the positive influence of his involvement on the mother and the whole family are now well established. Although developed since the 1980s, studies on the transition to fatherhood are still very few, and fail to reveal the psychological processes of becoming a father. Understanding the specific issues of today's men expecting a baby for the first time in order to

identify a theory of the transition to fatherhood. A concern for the pre- and postnatal period is granted as well as for the dimensions of process and co-construction with the spouse.

**Methodology:** The grounded theory constitutes the framework of reference for the collection of data and their analyses. An inductive logic guided the conduct of semi-directed interviews lasting 40 to 60 minutes. Six dyads of future parents were separately interviewed at each trimester of pregnancy and once between first and third month in postnatal period. Transcripts of these 48 interviews were the subject of a comprehensive analysis, then of a thematic analysis, and gradually becoming analysis by conceptualizing categories with the support of the software QSR NVivo.

**Results:** These preliminary results focus on the combination of future mothers' and future fathers' perspectives about becoming a father. From a processual point of view, it's difficult for each of them to decenterate from needs and experiences of the mother-to-be to concentrate on the experience of father-to-be. The communication between them about her body transformations and the fetal manifestations give support for his psychic work which results in subjective appropriation of the experience only in postnatal period.

Mutual mirroring seems important as much as rituals as a way of making sense together at different stages of pregnancy. From a content point of view, differences and similarities between men's and women's speech will be detailed.

**Conclusions:** Intervention guidelines for accompanying fathers and couples are derived from these results.

**Keywords:** Transition to fatherhood, perinatal period, couple communication, psychological processes, qualitative research

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### Association of vitamin D receptor (VDR) Fok 1 and Taq 1 gene polymorphisms with vitamin D levels and susceptibility to postpartum depression in South Indian women

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**Background & Aim:** Postpartum depression (PPD) is the common psychiatric complication of childbirth and has long-term effects on both mother and infant. The true molecular insight into the cause of PPD is lacking. Hypovitaminosis D has been implicated in the severity of depressive symptoms in postpartum women. Variations in Vitamin D receptor (VDR) gene regulate the vitamin D levels and are associated with hypovitaminosis D. Hence the present study aimed to evaluate the association of VDR Fok 1 and Taq 1 gene polymorphisms with vitamin D levels and severity of postpartum depression in South Indian women.

**Methodology:** In this cross-sectional study, 330 PPD women and 330 age- and BMI-matched non-PPD women were included. Depressive symptoms were assessed using validated Edinburgh Postnatal Depression Scale (EPDS) and cut-off score  $\geq 10$  was used. Genotyping of VDR Fok1 and Taq 1 SNPs were done by Taqman assay and serum 25 hydroxy vitamin D [25(OH) D] levels were measured using commercially available ELISA kits.

**Results & Conclusion:** Serum 25(OH) D was found to be significantly lower in PPD women than non-PPD women ( $p=0.000$ ). A significant negative correlation was observed between 25 (OH) D and EPDS score in total study subjects ( $p=0.000$ ,  $r=-0.193$ ). The mutant genotype TT of Fok 1 SNP was associated with twice the risk of PPD (Odds Ratio (OR) 2.613, 95% Confidence Interval (CI), 1.227-5.661,  $p=0.014$ ) whereas the mutant genotype CC and allele C of Taq 1 SNP was found to have protective effect against the risk of PPD (OR 0.761, 95% CI, 0.610-0.949,  $p=0.018$ ).

Hypovitaminosis D was observed in PPD women. Our results suggest that TT genotype of VDR Fok I polymorphism is associated with increased susceptibility to PPD whereas CC genotype and C allele of Taq I polymorphism confers protection against PPD among South Indian women. Individual genotypes of VDR SNPs were not associated with serum vitamin D levels.

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#### Possible effects of breastfeeding on prenatal depression prediction of children's IQ and behavior

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**Aim & Background:** Breastfeeding is widely acknowledged to have benefits and protective characteristics for mothers and babies. Research strongly suggests that breastfeeding improves cognitive development particularly IQ, and that breastfed infants display fewer behavioral problems compared to non-breastfed peers. In contrast, maternal prenatal depression has been shown to have long-term negative consequences for children's development including lower IQ and neurological maladjustment. However, little is known about whether breastfeeding is protective for the effects of prenatal depression on IQ and behavior in children. We aim to investigate if breastfeeding has a moderator effect on prenatal depression prediction of IQ and behavior in 4-year-old children.

**Methodology:** This study used the ALSPAC cohort. N=7423 participants with breastfeeding data (exclusive breastfeeding or mixed vs. formula feeding) at 1 month postpartum were included. Hierarchical regressions were calculated to predict IQ and behavior based on breastfeeding, prenatal depression and multiple confounders, including SES, smoking, birthweight and postnatal depression. Maternal depressive symptoms were assessed at 32 gestational weeks; infant behavior and IQ were assessed at 56 and 49 months old respectively.

**Results:** There were significant differences between the exclusive breastfeeding group and the exclusive formula group in relation to IQ ( $F(2)=21.70, p=.00$ ), hyperactivity ( $F(2)=72.07, p=.00$ ), conduct problems ( $F(2)=14.61, p=.00$ ) and total behavior difficulties ( $F(2)=48.95, p=.00$ ). A significant difference was also found between the exclusive breastfeeding and the mixed feeding groups in relation to hyperactivity ( $F(2)=72.07, p=.00$ ), conduct problems ( $F(2)=14.61, p=.00$ ) and total difficulties ( $F(2)=48.95, p=.00$ ). Standardized beta coefficients showed a reduction in the amount of prediction depressive symptoms have in relation to IQ and hyperactivity when exclusive breastfeeding was entered into the model. Despite the reduction of prediction, the mediation effect was only significant for total IQ ( $z=-3.07, SD=0.72, p=0.002$ ), and with a small effect size. No significant moderation was found between prenatal depressive symptoms and breastfeeding patterns on the IQ and behavior sub-scales.

**Conclusions:** Our results suggest that breastfeeding patterns improve cognitive and behavioral outcomes. Breastfeeding does not nullify the negative effects depressive symptoms have on child IQ and behavior, but it reduces its effects, to a small degree, on IQ.

**Keywords:** breastfeeding, prenatal depression, children's IQ, children's behavior

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#### Regaining 'MUMentum': Randomized controlled trial of online CBT for perinatal distress, anxiety, and depression

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**Aim & Background:** Women in the perinatal period often face a range of structural and attitudinal barriers to accessing and engaging with psychological treatment for anxiety and depression (e.g. lack of time, perceived stigma, distance to services, childcare issues). One approach to help increase access to treatment is through the use of internet-delivered treatments, specifically cognitive behavioral therapy (CBT). In comparison to face-to-face treatment, internet-delivered therapy is scalable (e.g., does not rely on clinician time and resources in order to be disseminated), available at a reduced cost, more accessible especially for rural and remote patients, and can be completed from the privacy and convenience of a mother's own home. To date internet-delivered CBT has demonstrated preliminary effectiveness in treating perinatal depression, yet no interventions have targeted the reduction of perinatal anxiety, despite anxiety being highly prevalent and comorbid with depression. The aim of this study was to evaluate the efficacy and acceptability of the MUMentum programs in reducing anxiety and depression, compared with usual care. MUMentum is based on the treatment principles of transdiagnostic CBT and consists of two brief courses tailored specifically to women experiencing anxiety and depression during the antenatal, and postpartum period.

**Methodology:** Participants were randomized to the treatment group or treatment-as-usual control group and completed the program over a period of 4-6 weeks.

**Results:** The efficacy of each program in reducing psychological distress, anxiety, and depressive symptom severity; its effects on attachment, parenting confidence, and quality of life; as well as treatment adherence, acceptability and satisfaction will be discussed. Preliminary results suggest that more than 75% of participants adhere to treatment and demonstrate large and superior improvements in symptom severity, compared to the control group.

**Conclusions:** This study will be the first to report on the efficacy and acceptability of an internet-delivered intervention for perinatal anxiety and depression. As this simple, brief intervention does not require mental health specialist supervision it can thus be easily disseminated to large numbers of women screening positive for anxiety, depression, and distress symptoms during pregnancy or postpartum.

**Keywords:** anxiety, depression, internet, treatment, online

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#### An overview of EPDS scores over 10 years in a tertiary hospital in Singapore

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**Aim & Background:** The Women's Emotional Health Service of the National University Hospital (NUH) screens and offers intervention for perinatal women at risk for mental health disorders. Perinatal patients are screened for possible depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS) at each pregnancy trimester and postpartum (i.e. T1, T2, T3, PN). We present an overview of EPDS scores collected from perinatal patients over a decade in a tertiary hospital in Singapore.

**Methodology:** We analyzed self-reported EPDS scores collected from 35,341 perinatal women who visited the NUH obstetrics clinics from 2008-2017. Descriptive statistics, Pearson's correlation and ANOVA were used to identify the changes in mean EPDS scores across the years and pregnancy trimesters, as well as differences between various age, racial, nationality and patient class groups.

**Results:** Mean EPDS scores were significantly higher in 2008 ( $M = 8.36, SD = 4.82$ ) and 2009 ( $M = 7.65, SD = 4.58$ ) as compared to the rest of the years and remained relatively stable throughout 2010-2017 ( $M = 6.76-7.03, SD = 4.28-4.49$ ). There was a decreasing trend in mean EPDS scores from the first trimester ( $M = 7.67, SD = 4.40$ ) to the postpartum period ( $M = 6.06, SD = 4.49$ ). Maternal age was negatively correlated to EPDS scores. Patients with lower income scored significantly higher on the

EPDS than patients with higher income. There were also significant differences in EPDS scores amongst racial groups, with Indians scoring the highest, followed by Malays, Chinese and others. No significant differences were found between Singaporean and foreign patients.

**Conclusions:** Overall, there is a decreasing trend of EPDS scores from 2008-2017, but remained relatively constant from 2010-2017. Patients also seem to face greater emotional distress at the earlier stages of the pregnancy. Younger, low-income and Indian patients are seemingly more vulnerable to emotional distress during the pregnancy. Based on our findings from this population-based study, we advocate for the provision of perinatal mental health interventions targeted at women who are at risk for perinatal mood disorders.

**Keywords:** perinatal, screening, depression, Singapore  
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### Validation of a Hindi version of the Edinburgh Postnatal Depression Scale as a screening tool for antenatal depression

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**Aim & Background:** Antenatal depression has been recognized as the strongest predictor of postnatal depression which itself is the strongest predictor of future mental disorders. The detection of antenatal depression is important and requires an accurate and practical screening tool. Edinburgh Postnatal Depression Scale (EPDS) remains the most extensively studied screening instrument for assessing postnatal depression. Therefore, the study was aimed to validate a linguistically and culturally appropriate Hindi version of the EPDS for use in women attending antenatal care in Sehore, Madhya Pradesh (India)

**Methodology:** A rigorously translated and modified Hindi version of the EPDS was developed taking Public Health Questionnaire -9 as a gold standard. Purposive sample of women (n=100) attending antenatal checkups in Primary Health Care were interviewed.

**Results:** The validity measure of Receiver Operator Characteristic (ROC) curve was plotted for a cutoff of 9/10. The prevalence of depression was found to be 17% at a cutoff score of 9/10 (sensitivity 65.38%, specificity 79.73%, Area Under the Curve 0.7346) Diagnostic Likelihood Ratio for a positive result 4.013).

**Conclusions:** To the best of our knowledge this is the first study to report exclusively on antenatal depression and the use of the EPDS in Indian context. It suggests that the EPDS can be an efficient instrument to rule out depression during pregnancy as it is easy to administer. Further research needs to be carried out to confirm these findings, examine and compare the results.

**Keywords:** validation, reliability, EPDS, antenatal depression, screening  
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### Assessment of Practice Readiness to Evaluate and address Perinatal Depression (PREPD)

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**Aim & Background:** Perinatal depression is the most common pregnancy complication. Professional organizations recommend universal screening within systems ensuring effective diagnosis, treatment and follow-up. To help integrate depression and perinatal care, we developed the 'Program In Support of Moms (PRISM)', a proactive, practical intervention requiring practice-level policy and workflow changes. When evaluating behavioral health intervention feasibility, practice readiness tools are commonly used in primary care, yet none exist for obstetric settings. Study objectives are to describe: (1) the Practice Readiness to Evaluate and address Perinatal Depression (PREPD) assessment; and (2) baseline results from 12 practices enrolled in PRISM.

**Methodology:** The PREPD was developed pairing subject-matter expertise with literature on successful organizational change and intervention implementation tenets. PREPD has four components each scored to a 16 point maximum, multiplied by the proportion to which they sum to an overall score, the Practice Readiness Index (PRI). The individual PREPD components are (1) environmental scan (ES, 10% of PREPD), (2) leadership-survey of detection, assessment, and treatment (DAT, 30%), (3) depression-related policies leadership-survey (DRP, 10%), and (4) chart abstraction (CA, 50%). The CA included 6 sub-indices, providing insights into different depression care facets.

**Results:** Average overall PRI was 7.3, ranging 4.8 to 9.9, indicating preparedness variability. Wide variation also existed in PREPD between practices, the 4 individual components, and the CA sub-indices. Component ES averaged 2.0 (range 0-5.2); DAT averaged 8.3 (range 3.0-11.5); and, CA averaged 7.2 (range (5.1-9.6)). The DRP component had the highest scores (average 10.4, range 7.5-15).

**Conclusions:** PREPD quantifies the extent to which individual obstetric practices have integrated depression care, and their readiness to implement practice improvements related to perinatal depression. Implementation efforts are often unsuccessful when change for readiness is unknown. Our data suggest that PREPD can facilitate assessment of practices' preparedness for addressing depression in obstetric settings and be used as a first step in deciding on goals for implementation of PRISM. It also provides a benchmark against which to measure the extent to which obstetric practices have successfully integrated depression care into their workflow.

**Keywords:** perinatal depression, integration, perinatal care, depression care, mental health care, obstetric practices  
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### Factors associated with contraceptive use in women with schizophrenia

Bhuvaneshwari Sethuraman, Suja Kurian

**Aim & Background:** Women with schizophrenia have unique and complex needs in sexual and reproductive domain. Unplanned pregnancy, coerced physical contact, exposure to multiple psychotropic medication in unplanned pregnancy, increased obstetric complications are well known challenges faced by them. Education and empowerment regarding the use of birth control measures is a good option, but are often overlooked in a mental health facility. There are no studies from India addressing the contraceptive practice of this subset of women. This cross-sectional study describes the use of contraception and factors associated with them.

**Methodology:** 96 married women with schizophrenia in remission, attending outpatient department of a tertiary care psychiatric hospital in South India, were assessed with the modified questionnaire from National Family Health Survey 3, regarding the use of contraception. Severity of illness was assessed using PANSS and factors associated with contraceptive practices were done using univariate and multivariate analysis.

**Results:** Two-thirds of women were using contraception at the time of study, majority had undergone tubectomy. Number of children was significantly associated with use of contraception at the time of the study. Sociodemographic factors like age, education, occupation, type of housing, socio economic status, income, presence of debts, marital and obstetric parameters were not associated with use of contraception at the time of the study.

Illness-related factors like duration of illness, subtype of schizophrenia, severity and treatment variables or duration of contact with mental health facility were also not significantly associated with contraceptive use.

**Conclusions:** Use of contraception in this group of women with schizophrenia was not influenced by illness parameters, sociodemographic variables and marital, obstetric factors but was associated with total number of children. Case control studies are needed to delineate the differences from women without the diagnosis of schizophrenia.

**Keywords:** contraception, women with schizophrenia, pregnancy  
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**A retrospective case-note review of women with a diagnosis of postpartum psychosis admitted to Zomba Mental Hospital, Malawi**

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**Aim & Background:** Postpartum psychosis is a severe perinatal mental disorder with an incidence of 1-2 per 1000 women following a live birth in the UK. There is a dearth of research into postpartum psychosis in Sub-Saharan Africa and no previous studies from Malawi. This study set out to describe the demographics, presentation, treatment and outcomes of women admitted with a diagnosis of postpartum psychosis at Zomba Mental Hospital (ZMH), Malawi. The hospital has the facility for joint admissions of mother, baby and family member to general female wards.

**Methodology:** We conducted a retrospective case-note study. The study population was all women admitted to ZMH from 1/1/2010 to 31/12/2016. The sample was identified from the records database. The inclusion criterion was all women with a case note diagnosis of postpartum psychosis. Data were collected using a structured data collection tool.

**Results:** From 1/1/2010 to 31/12/2016 there were 3778 female admissions. 110 (2.9%) women had a records database diagnosis of postpartum psychosis. Case notes could not be found for 9 women; thus, data were collected from 101 cases. There were considerable missing data for some variables. Mean age was 24(SD 6) years. 39(38.6%) had a past psychiatric history and 60(59.4%) had a family history of mental illness. 74(73.3%) were breastfeeding. Regarding treatment, 54(53.5%) received electroconvulsive therapy (ECT); the most commonly prescribed medications were haloperidol (63(62.4%)) chlorpromazine (50(49.5%)) and lorazepam (26(25.7%)). Median length of admission was 17 days (interquartile range 10-32). 26(25.7%) had at least one subsequent admission; diagnoses on readmission were postpartum psychosis (11(42%)), bipolar affective disorder (6(23%)) and psychosis/schizophrenia (8(30.8%)).

**Conclusions:** We found many similarities with the presentation of postpartum psychosis in high income settings including a high prevalence of personal or family psychiatric history, and relatively short duration of admission but significant relapse risk. Of note, most women were breastfeeding and the main treatments were ECT and antipsychotic medication. The key limitation of the study was the use of case-note diagnoses and other information that we were unable to verify. Prospective cohort studies, qualitative studies of cultural understanding, and intervention studies are all indicated in sub-Saharan African settings.

**Keywords:** Postpartum psychosis, sub-Saharan Africa, low- and middle-income countries  
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**Depression in pregnancy: Adverse obstetric and fetal outcomes**

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**Aim & Background:** Research in the last two decades has shown that untreated depression during pregnancy carries substantial perinatal risks. Less is known about the risks of treating antenatal depression with antidepressants. More evidence is needed of the relative risks for fetal growth of not treating depression in pregnancy compared with treating with antidepressants.

**Methodology:** 152 pregnant women were recruited into a prospective study and underwent ultrasound scans at 10- and 20-weeks' gestation. Information on current and past psychiatric history was obtained at 20 weeks. A diagnosis of DSM-IV major depressive disorder (MDD) was made from the SCID interview and information on medication obtained.

**Results:** Of the 152 women, 61 were healthy controls, 53 had a diagnosis of current depression but were not on medication, 20 had a past history of depression and were not on medication and 18 were on antidepressant medication. Compared with healthy controls, fetuses of pregnant women on antidepressants had significantly reduced biparietal diameter (BPD,  $p=.005$ ), head circumference (HC,  $p=.001$ ), abdominal circumference (AC,  $p=.006$ ), femur length (FL,  $p<.001$ ) and lower birth weight ( $p<.001$ ). Fetuses of depressed pregnant women not on medication had significantly increased crown rump length (CRL,  $p=.006$ ) compared with healthy controls.

**Conclusions:** Compared to the fetal measurements of healthy mothers, the BPD, HC, AC, FL of the fetuses of women taking antidepressants in the second trimester of pregnancy were significantly reduced. Birth weight was also lower. CRL was higher in the fetuses of mothers who were depressed and not on medication. These findings add to the debate of the effect of antidepressant use on the fetus.

**Keywords:** antidepressants, birth weight, fetal measurements, major depressive disorder, pregnancy  
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**Changes in mood, after screening for antenatal anxiety and depression**

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**Aim & Background:** Screening programs with referral are a valuable strategy for mitigating consequences of perinatal depression on mothers and their families. The effectiveness of these screening programs needs to be measured. One potential problem in assessing outcomes is measurement reactivity where the actual measure results in changes in the people being measured. The aim of this presentation is to explain the mechanisms and circumstances by which measurement reactivity occurred in a sample of antenatal women who participated in a screening interview.

**Methodology:** Fifty-five women who participated in an antenatal screening interview in their second trimester were re-interviewed in their third trimester. These qualitative interviews were conducted between September 2015 and April 2016.

**Results:** The qualitative data suggested that measurement reactivity occurred through mechanisms such as the disclosure, gaining self-knowledge, validation of experiences, and personal agency which resulted in them seeking out support from others.

**Conclusions:** Although the screening interview appeared to improve women's outcomes, this may have occurred through measurement reactivity. This needs to be considered when designing studies that aim to assess the effectiveness of screening with intervention for antenatal depression.

**Keywords:** screening, measurement reactivity, South Africa  
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**Foreign accent syndrome in the perinatal period - A case study**

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**Aim & Background:** Foreign accent syndrome is a rare condition where speech is characterized by a new accent to the patient's native language, which is foreign to both speaker and listener. (1) Of note is that the patient has no connection to the country of origin. Evidence from literature suggests three main subtypes of foreign accent syndrome (FAS): neurogenic, psychogenic, and mixed. There have been few cases with a psychogenic origin and none reported during the perinatal period. This case describes a

40-year-old woman of mixed race, British and Jamaican developing a foreign accent during her 4th pregnancy

**Methodology:** Case Study: A 40-year-old woman of mixed race was admitted to an MBU following the birth of her fourth child due to concerns raised by social care regarding potential risk of neglect of home environment. She was dyslexic, had intermittent visual and hearing impairment and then developed a sudden onset of a foreign accent, 6 months prior to admission. MRI revealed no abnormalities. She also had a long history of significant life stressors which included severe health issues with her children, social isolation and domestic violence.

**Results:** As no organic cause was identified, the FAS was said to be psychogenic in origin and possibly a conversion disorder. Referral for Speech and Language therapy input was done at time of writing of report.

**Conclusions:** Literature review: Psychogenic FAS is defined by Verhoeven and Marrien as a variant in which the foreign accent of the patient is grounded in underlying psychological issues like anxiety, de-

pression, personality disorder, or conversion reaction. Keulen S et al., have reported that 67% are said to be women as compared to 33% men. In their review of cases with a hypothesis of conversion disorder, FAS was never the first conversion symptom to occur. Of the reported cases some resolved spontaneously, others improved with resolution of the mental health disorder and some had Speech and Language therapy to reduce the FAS. More research is needed on the treatment of non-organic speech and language disorders.

**Keywords:** Foreign Accent Syndrome, conversion disorder  
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