

Impact case study (REF3)

Institution: King's College London		
Unit of Assessment: 4		
Title of case study: The transformation of perinatal mental health care		
Period when the underpinning research was undertaken: 2001-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Louise Howard	Professor	From 29/09/1997
Fiona Challacombe	Clinical Lecturer	From 01/05/2017
Abigail Easter	Senior Lecturer	From 01/06/2016
Hind Khalifeh	Clinical Research Fellow	01/09/2014 – 31/03/2019
Kylee Trevillion	Lecturer	From 02/09/2013
Clare Dolman	Service user researcher	01/10/2010- 01/07/2019
Carmine Pariante	Professor	From 09/04/1999
Nadia Micali	Clinical Fellow	01/08/2010 – 30/09/2013
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		

1. Summary of the impact

Mental illness during pregnancy and the first year after childbirth (perinatal mental illness) affects one in four mothers and can include depression and anxiety and maternal suicide. A programme of King's research played a key role in ensuring perinatal mental health was placed firmly on the political and public agenda, ultimately leading to increased service provision. This work has changed and improved previous guidelines on how to identify and treat perinatal mental illness. It influenced the UK government's decision to allocate NHS England £365 million over five years in new funding for perinatal mental health services. King's research underpinned national and international clinical guidelines, and evidence-based care pathways. This has led to service developments allowing perinatal mental health services to treat 30,000 extra women from 2016-21. Alongside this, King's research has been the basis of the specialist training of thousands of clinicians, including via the Royal College of Psychiatrists and Health Education England, and has informed pregnancy planning tools available via the website of the pregnancy charity, Tommy's, reaching more than 8000 women per month.

2. Underpinning research

Perinatal mental illness (mental illness during pregnancy and up to one year after birth) affects up to one in four women, often with long-term adverse consequences for both mother and child. Identification and treatment are crucial to break this cycle of intergenerational transmission of mental ill health.

King's established the effect of perinatal mental illness on women and children.

Using primary research and reviews King's was one of the first groups to highlight the inter-relationships between mental disorders in mothers and a gamut of risk factors and disorders including social disadvantage, smoking, domestic violence, obesity and gestational diabetes (reviewed in **1**). King's research demonstrated the relationship between perinatal mental disorders and adverse outcomes for the child (e.g. **2**), including stillbirth, neonatal death, sudden infant death syndrome, low birth weight (e.g. **3**), delayed development, parenting difficulties, loss of custody of the baby (**4**; wider review in **5**). Our work further demonstrated the considerable cost to families and society of later harmful consequences of exposure to maternal mental illness on childhood outcomes. Using data from the South London Child Development Study we found that children

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exposed to perinatal depression had more emotional, behavioural and cognitive problems, and for each child exposed to maternal depression, the minimum economic cost by early adolescence was £8,190 (6).

King's researchers were the first to establish the prevalence of the full range of mental illnesses in pregnancy and associated risk factors. Before 2014 most perinatal mental health research focused on postpartum depression and psychosis. Using gold-standard diagnostic interviews we established the prevalence of the full range of mental disorders in a cohort of pregnant women, which highlighted the importance of rarer disorders including eating disorders and obsessive-compulsive disorder (OCD) (7).

King's research addressed key issues of importance to mental health service users.

Using national suicide enquiry data we conducted the first UK study examining perinatal suicide in those in contact with mental health services compared with other suicides in women. This highlighted the distinct characteristics of perinatal suicides including a relatively short duration of mental disorder and high prevalence of depression in mothers who died by suicide. A substantial minority were not receiving treatments for mental disorders (8).

The use of psychotropic medication during the perinatal period has been an ongoing concern for women and their healthcare providers. Risks of exposing the developing fetus to medicines need to be balanced against risks to mother and fetus or child in the event of a relapse or worsening of a major mental disorder. King's authored influential reviews of the effects of pharmacological treatments throughout the perinatal period (1), and specifically antidepressants during the postnatal period (9), highlighting the lack of high quality studies in both areas. King's then collaborated on primary research and meta-analyses to address this gap. For example, in women with bipolar illness, lithium reduces the likelihood of postpartum psychosis, but was previously considered dangerous to the developing fetus, particularly to the heart. Our research indicated no increased risk in heart defects, indicating that lithium is much safer than previously thought (10).

King's researchers were the first to evaluate screening tools as used in UK maternity services. King's research has assessed the efficacy of mental health screening questions in pregnant women, showing that current depression questions do help identify depression and other mental disorders in pregnancy (7), however we also showed that screening questions for anxiety, (previously not evaluated for use in pregnancy, and recommended through expert consensus at NICE due to lack of other evidence), are not useful due to excess false positives in early pregnancy (11).

3. References to the research

1. **Howard LM, Molyneux E, Dennis C-L, Rochat T, Stein A, Milgrom J.** (2014) Perinatal Mental Health 1: Non-psychotic mental disorders in the perinatal period. *The Lancet* 384: 1775–88 DOI: 10.1016/S0140-6736(14)61276-9
2. **Conroy, S., Pariente, C. M., Marks, M. N., Davies, H. A., Farrelly, S., Schacht, R. & Moran, P.** (2012) Maternal psychopathology and infant development at 18 months: the impact of maternal personality disorder and depression, *Journal of the American Academy of Child and Adolescent Psychiatry*, 51(1):51-61. DOI: 10.1016/j.jaac.2011.10.007
3. **Micali, N., Simonoff, E. & Treasure, J.** (2007) Risk of major adverse perinatal outcomes in women with eating disorders. *The British Journal of Psychiatry*, 190:255-259. DOI: 10.1192/bjp.bp.106.020768
4. **Howard LM, Thornicroft G, Salmon M, Appleby L.** (2004) Predictors of parenting outcome in women with psychotic disorders discharged from mother and baby units. *Acta Psychiatrica Scandinavica* 110:347-55. doi: 10.1111/j.1600-0447.2004.00375.x
5. Stein A, Pearson RM, Goodman, SH, Rapa E, Rahman A, McCallum M, **Howard LM, Pariente CM.** (2014) Effects of perinatal mental disorders on the fetus and child. *The Lancet* 384, 1800-19. DOI: 10.1016/S0140-6736(14)61277-0

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6. Bauer A, **Pawlby S, Plant DT**, King D, **Pariante CM**, Knapp M. (2015) Perinatal depression and child development: exploring the economic consequences from a South London cohort. *Psychological Medicine*. 45(1);51-61. doi: 10.1017/S0033291714001044
7. **Howard LM, Ryan E, Trevillion K, Anderson F, Bick D, Bye A, Byford S, O'Connor S, Sands P, Demilew J**, Milgrom J, **Pickles A**. (2018) The accuracy of the Whooley questions and the Edinburgh Postnatal Depression Scale in identifying mental disorders in early pregnancy. *Br J Psychiatry* 212, 50–56. doi: 10.1192/bjp.2017.9
8. **Khalifeh H**, Hunt IM, Appleby L, **Howard LM**. (2016) Suicide in perinatal and non-perinatal women in contact with psychiatric services: 15 year findings from a UK national inquiry. *The Lancet Psychiatry* 3(3): 233-42. doi: 10.1016/S2215-0366(16)00003-1
9. **Molyneaux E, Howard LM, McGeown HR, Karia AM, Trevillion K**. (2014) Antidepressant treatment for postnatal depression. *Cochrane Database of Systematic Reviews*, Issue 9. Art. No.: CD002018. doi: 10.1002/14651858.CD002018.pub2.
10. Munk-Olsen T, Liu X, Viktorin A, Brown HK, Di Florio A, D'Onofrio BM, Gomes T, **Howard LM, Khalifeh H**, Krohn H, Larsson H, Lichtenstein P, **Taylor CL**, Van Kamp I, Wesseloo R, Meltzer-Brody S, Vigod SN, Bergink V (2018) Maternal and infant outcomes associated with lithium use in pregnancy: an international collaborative meta-analysis of six cohort studies. *Lancet Psychiatry* 5: 644–52 DOI: 10.1016/S2215-0366(18)30180-9
11. **Nath S, Ryan E, Trevillion K, Bick D, Demilew J, Milgrom J, Pickles A, Howard LM**. (2018) 'The prevalence and identification of anxiety disorders in pregnancy: the diagnostic accuracy of the two item Generalized Anxiety Disorder scale (GAD-2)', *BMJ Open*, vol. 8, no. 9, e023766. doi:10.1136/bmjopen-2018-023766

4. Details of the impact

King's research has had far-reaching impacts on perinatal mental health, including practice guidelines, their implementation, funding of new services and establishment of such services through training. Based on King's body of research in this area, King's researchers developed a comprehensive pathway to impact by engaging with policy makers. Howard chaired NICE CG192 guideline panel, wrote a chapter for the Chief Medical Officer public health reports and compiled a highly influential *The Lancet* series of three reviews on perinatal mental health (1, 5). These and other avenues described below ensured King's research findings catalysed a transformation of services for women with perinatal mental disorders in the UK and beyond.

King's research directly influenced UK and international maternity and mental health services guidelines. King's evidence on the diversity, complexity and extent of morbidity in women with perinatal mental disorders, with over 20 individual citations (e.g. 2, 3, 4), informed detailed recommendations on comprehensive assessment in NICE guidance CG192 (2014), Antenatal and postnatal mental health: clinical management and service guidance [A].

Professional organisations cited King's research as an evidence-base for recommendations to their members. The Royal College of Psychiatrists referred to King's research (1) in their CR197 Report on Perinatal Mental Health Services which made recommendations on service provision [B1]. The Chief Medical Officer's 2014 report - *The Health of the 51%: Women*, included a chapter on perinatal mental health which cited King's research (1,5) to inform recommendations [B2]. King's findings (11) led to the removal of anxiety screening questions from the NHS Maternity Minimum Dataset, which is used for local and national monitoring, commissioning and addressing health inequalities [B3, B4].

Internationally King's research (1) informed the World Psychiatry Association (WPA) position statement [B5]. King's research into perinatal suicide (8) was cited in guidance for US maternity professionals [B6] and King's research on outcomes for the fetus and child (5) was cited in Australian and New Zealand mood disorder guidelines [B7].

King's research influenced significant increases in funding for new NHS perinatal mental health services. King's research on the prevalence (1), impact (5, 8) and cost (6) of perinatal disorders defined the urgent need for increased service provision. King's research (1) was a key

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contribution to a report in 2014 commissioned by the Maternal Mental Health Alliance (MMHA), a consortium of more than 80 charities, as part of their awareness-raising campaign Everyone's Business [C1]. MMHA also commissioned the Centre for Mental Health to conduct an independent review of the health economic case for further investment [C2] which cited King's research extensively (including 2, 3, 4) and led on to **£365 million funding for new NHS perinatal mental health services**.

King's research informed and refined implementation guidelines into UK clinical practice.

To fulfil this funding commitment, the NCCMH was then commissioned by NHSE to develop new perinatal mental health services and training, in the form of implementation guidance and NICE concordant care pathways [D]. Professor Howard was National Clinical Advisor (2014-5) informing the development of these, based on insights from King's research (e.g. 5, 8), and the guidelines widely cite (including 1, 5 and 8) King's research, leading to the implementation of care pathways concordant with NICE guidelines. King's recent reviews and primary research on the prevalence of disorders and interventions (e.g. 1, 7) are also cited.

King's research resulted in many thousands more women supported through perinatal mental health services. This investment and development in services led to 30,000 more women receiving perinatal mental health interventions in line with NICE guidance (2016-21) [B4], and a planned further 24,000 women receiving NICE-concordant care to 2025, as described in the NHS Long-Term Plan (which cites ref 7 on evidence of the high prevalence of maternal mental disorders) [E1]. NICE showcases this progression of evidence from these reports which led to government investment in perinatal services [E2]. This implementation continues to be evaluated by King's researchers, supporting shared learning and the delivery of high quality services, and identifying changes of focus as needed [B4].

KCL research underpinned resources to help women in the UK with perinatal mental illness

King's research laid the foundation for the development of the KCL self-help guide for antenatal depression which became available through the Increased Access to Psychological Therapies services [F1]. The workbook was requested by 134 services nationally, estimated to have impacted more than 5,000 women per year (a perinatal specifier was only recently added to routine data collection). One practitioner's feedback by email was "*Fantastic...really helpful for the women.*" [F2].

King's research has contributed to the pregnancy charity, Tommy's, widely-used pregnancy information resources (30,000 page views per month) and the pregnancy planning tool for the general population including information on common mental health problems (9,000 monthly unique users) [F3, F4].

King's research has improved health professionals' understanding of perinatal mental health.

King's research underpins the Building Capacity in Perinatal Psychiatry programme. This is training delivered by the Royal College of Psychiatrists, and commissioned by Health Education England, to perinatal psychiatrists leading the new services set up under NHS England funding, and has trained almost 500 psychiatrists and other mental health professionals [G1]. The Maternal Mental Health Alliance reports [C1, C2] which were underpinned by King's research (see above), were the key resource for the development of the Royal College of General Practitioners Perinatal Mental Health Toolkit, a widely-accessed free online educational resource for all health practitioners [G2]. Internationally, taken together with the WPA Position Statement [B5], the guidance for US maternity professionals [B6], and the Australian and New Zealand mood disorder guidelines [B7], these activities will have reached tens of thousands of health professionals internationally.

King's research has had widespread coverage in the media raising public awareness.

With the continuing barriers to women voicing their experiences of perinatal mental illness it is important to raise awareness about the commonplace existence of mental health problems in this group and the available support. King's research has been covered widely in the UK media, including television (e.g. BBC News), Radio (e.g. BBC Radio 4) [H1] and print (e.g. Daily Mail, Huffington Post) [H2], allowing its messages and implications to be communicated directly to women themselves with the aim of enabling them to seek the help they need.

5. Sources to corroborate the impact

[A] NICE full guidance CG192, Antenatal and postnatal mental health: clinical management and service guidance (Dec 2014)

[B] Sources to corroborate claim that King's research has been cited as an evidence base for members of professional organisations:

B1 RCPsych CR197 report on Perinatal Mental Health Services

B2 The Annual Report of the Chief Medical Officer, 2014 - The Health of the 51%: Women

B3 Maternity Minimum Dataset

B4 Testimonial from Sarah Dunsdon, Programme Manager - Perinatal Mental Health, NHS England and NHS Improvement

B5 World Psychiatric Association Position Statement on Perinatal Mental Health (March 2017) B6 US maternity professionals - Consensus Bundle on Maternal Mental Health: Perinatal Depression and Anxiety

B7 Royal Australian and New Zealand College of Psychiatrists clinical practice guidelines for mood disorders (2015)

[C] Sources to corroborate King's contributions making the case for increased investment in maternity mental health services in the UK

C1 Everyone's Business campaign, 2016 evaluation report for Maternal Mental Health Alliance

C2 Centre for Mental Health 2014 report commissioned by the Maternal Mental Health Alliance: The costs of perinatal mental health problems

[D] The Perinatal Mental Health Care Pathways: Full Implementation Guidance – National Collaborating Centre for Mental Health, London (2018) (also referred to as NICE concordant care pathways).

[E] Sources to corroborate how King's research led to increased services and more women being supported

E1 The NHS Long Term Plan, NHS (Jan 2019)

E2 NICE statement: Perinatal Mental Health: making the case for action

[F] Sources to corroborate King's contributions to resources for perinatal women

F1 NHS London: Depression in pregnancy guided self-help workbook

F2 IAPT Practitioner feedback by email

F3 Tommy's pregnancy information resources website page

F4 Testimonial from Jane Brewin, Chief Executive Officer, Tommy's

[G] Sources to corroborate how King's research has informed training of professionals

G1 Royal College of Psychiatrists Testimonial

G2 The Royal College of General Practitioners Perinatal Mental Health Toolkit.

[H] Sources to corroborate King's work having widespread coverage in the media:

H1 Broadcast coverage summary

H2 Print articles from: Daily Mail, Independent, Huffington Post, Metro UK, iNews, Nursing Times.