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Citation: Webb, R., Ford, E., Easter, A., Shakespeare, J., Holly, J., Hogg, S., Coates, R., Ayers, S. & Study Team, MATRIx (2023). The MATRIx Models – Conceptual frameworks of barriers and facilitators to perinatal mental health care. BJPsych Open,

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**The MATRIx Models – Conceptual frameworks of barriers and facilitators to
perinatal mental health care**

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Abstract

Background: Perinatal Mental Health (PMH) problems are a leading cause of maternal death and increase the risk of poor outcomes for women and their families. It is therefore important to identify the barriers and facilitators to implementing and accessing PMH care.

Aim: To develop a conceptual framework of barriers and facilitators to PMH care to inform PMH services.

Methods: Relevant literature was systematically identified then categorised and mapped onto the framework. The framework was then validated through evaluating confidence with the evidence base, and feedback from stakeholders (women and families; health professionals; commissioners and policy makers).

Results: Barriers and facilitators to PMH care were identified at seven levels: *Individual* (e.g., beliefs about mental illness); *Health professional* (e.g., confidence addressing perinatal mental illness); *Interpersonal* (e.g., relationship between women and health professionals); *Organisational* (e.g., continuity of carer); *Commissioner* (e.g., referral pathways); *Political* (e.g., women's economic status); and *Societal* (e.g., stigma). The MATRIx conceptual frameworks provide pictorial representations of 66 barriers and 39 facilitators to PMH care.

Conclusions: The MATRIx frameworks highlight the complex interplay of individual and system level factors across different stages of the care pathway that influence women accessing PMH care and effective implementation of PMH services. Recommendations are made for health policy and practice. These include using the conceptual frameworks to inform comprehensive, strategic and evidence-based approaches to PMH care; ensuring care is easy to access and flexible; providing culturally sensitive care; adequate funding of services; and quality training for health professionals with protected time to complete it.

Introduction

Background

Perinatal mental health (PMH) difficulties can occur during pregnancy or up to 12 months after birth. They commonly consist of anxiety disorders, depression, post-traumatic stress disorder (PTSD), and stress-related conditions such as adjustment disorder. Many disorders are co-morbid(1). PMH difficulties can have a negative impact on women and their families(2–7). Furthermore, the cost to society is substantial - approximately £8.1 billion for every annual cohort of women in the UK, with 72% of this cost attributable to the long-term impact on the child(8).

The UK is an example of a country where PMH services are being prioritised and funded, but there is still a lot to learn. In the UK healthcare is free and mostly funded through taxation (National Health Service; NHS). Every year the UK government assigns a certain amount to be spent on healthcare. Each of the devolved nations (England, Wales, Scotland and Northern Ireland) receive a proportion of this funding and are able to decide which health services to allocate funds to(9). This means the amount and proportion of funds assigned to PMH services will differ between devolved nations. For example, in 2014 NHS England set out plans for £365million to be spent on specialist PMH services from 2016-2021(10) as part of their Five Year Forward View. This has been continued and complemented by subsequent policy and funding announcements, including those in the NHS England Long Term Plan which pledged an additional £2.3billion a year, stating that by 2023/24 66,000 women with moderate to severe mental health difficulties should have access to specialist care from pre-conception to 24 months postnatal (11). Scotland has invested £2.5million over 2.5 years from 2020 to 2023 in the Perinatal and Infant Mental Health Fund(12). Between 2016-2019 Wales invested £1.5million every year into PMH services(13), and between 2019-2022 Wales committed to implementing new community PMH services(14) . Furthermore, in 2021

Northern Ireland announced the development of new specialist PMH services at an estimated cost of £4.7million per year(15).

While there have been large improvements in PMH service provision in the UK since the publication of the these plans, in 2020 the Maternal Mental Health Alliance identified that 20% of Clinical Commissioning Groups (CCGs) in England still did not have specialist PMH services. These gaps in specialist PMH service provision are even higher in Wales, Scotland and Northern Ireland, with 71.4% of health boards in Wales, 85.7% of health boards in Scotland and 100% of health and social care trusts in Northern Irelands not proving specialist community PMH services(16).

Treatment gaps

These treatment gaps may mean women are not accessing the care that they need(17). Our recent systematic review of international research identified multiple levels (individual, health professional, interpersonal, organisational, political, societal) at which barriers to PMH care implementation can occur(18). Research also suggests that even if services are available, women do not always seek help(19) or access help(17,20). Our meta-review of international research identifying barriers and facilitators to women accessing PMH care found barriers occurred at the same multiple levels as implementation barriers(21). Both of these reviews provide an understanding of barriers to implementing PMH care and women deciding to seek help, accessing help and engaging in PMH care. Given the gaps in women accessing PMH care, and PMH service implementation, as well the policy support and funding support for PMH services(11,12,14,15,22), it is both timely and important to provide evidence-based recommendations for policy and practice related to PMH service provision within the NHS context. In order to do this the results from both reviews discussed above need to be synthesised, and the confidence with the evidence assessed, by creating a conceptual framework. A conceptual framework can be defined as a “network, or a plane, of interlinked

concepts that together provide a comprehensive understanding of a phenomenon or phenomena”(23). The development of a conceptual framework can highlight areas for improvement and provide an empirical basis for recommendations for future practice and research.

Method

Aim

To develop a conceptual framework of barriers and facilitators to PMH identification, assessment and treatment in order to inform healthcare services and practice, care pathways, and highlight where further research is needed.

Development of conceptual framework

The conceptual framework was developed using the method described by Jabareen(23)(see Figure 1). This involved following eight phases which are presented in detail below.

(1) Mapping the selected data sources

The first step is to identify sources of data, such as existing empirical data using a systematic approach(23). To identify data two systematic reviews were carried out using a comprehensive search strategy and following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines(24). The first systematic review looked at barriers and facilitators to implementing PMH care and 46 empirical studies were included(18). The second was a meta-review of systematic reviews and looked at barriers and facilitators to women deciding to seek help, access help and engage in PMH care. A total of 32 systematic reviews were included(21). See individual papers for more detail of these reviews.

(2) Extensive reading and categorising of the selected data

The aim of stage 2 is to read the selected data and categorise it by discipline(23). Line by line extraction of statements referring to facilitators or barriers to PMH assessment, care and treatment was carried out for both reviews. Therefore, data were categorised into barriers and facilitators.

(3) Identifying and naming concepts

The third stage is to read and reread the selected data and ‘discover’ concepts(23). This was done by re-reading the extracted data and assigning descriptive themes/concepts based on data's meaning and content. Themes/concepts were developed and revised as each study was re-read. .

(4) Deconstructing and categorising the concepts

The aim of stage 4 is to identify each concepts attributes, characteristics and role organise and categorise the concepts accordingly (23). This stage was completed by assessing the fit of the data onto various implementation frameworks. For Review 1, concepts were mapped onto (a) an implementation model; and (b) a care pathway. Three implementation frameworks were assessed for their fit to the data: the Consolidated Framework for Implementation (CFIR(25)); Reach Effectiveness Adoption Implementation Maintenance (RE-AIM(26)) and Ferlie and Shortell’s Levels of Change framework(27). The RE-AIM and CFIR models both focus more on planning and evaluating the implementation of services. The data we were looking at were barriers and facilitators to implementation, and to women accessing services, thus a broader model was required. Ferlie and Shortell’s Level of Change framework was originally developed to understand how health services could be improved so provided a better fit to our data. They hypothesis that four levels must change for health services to improve, and these are patient, care team, organisation, and environment. The data fit best onto this model, however certain concepts did not map onto this model. Therefore, the

mapping of concepts was developed deductively from the initial theoretical framework and then inductively revised as new concepts emerged.

(5) Integrating concepts

The aim of stage 5 is to integrate and group together concepts that have similarities (23). The mapping of the concepts described in section 4, led to the MATRIx multi-level model. This model has seven levels: the first level is the individual level, which reflects factors related to the person themselves. The second level is health professional, which reflects factors related to the health professional. Interpersonal refers to the relationship between women and health professionals, this is an extension of Ferlie and Shortell's work and was included because this concept was apparent in the literature(28). The next concept is organisational, which relates to how the organisation is run, and the type of care the organisation delivers. The political level relates to the policies and governing that may impact on women, and healthcare. The societal level relates to larger societal factors, such as stigma (see supplementary materials 1). It is important to note that these levels do not exist in isolation but often impact one another, for example a lack of political funding and policy will have a negative impact on how an organisation is run.

Concepts were then mapped across different stages of the care pathway. The data best fit onto to an adapted care pathway from Goldberg and Huxley's Pathways to Care model(29). The MATRIx care pathway has eight stages (Decision to consult, first contact with health professionals, assessment, deciding to disclose, referral, access to care, provision of optimal care, women's experience of care; see online supplementary materials 2). This care pathway is reflective of UK NICE guidelines for perinatal mental health care(30), and the introduction of Improving Access to Psychological Therapy (IAPT) services.

For Review 2 concepts were mapped onto the MATRIx multi-level model and MATRIx care pathway.

(6) Synthesis, resynthesis and making it all make sense

The aim in this phase is to synthesize concepts into a theoretical framework, using an iterative process of repetitive synthesis and resynthesis(23). This stage was done in multiple steps:

(a) Combining the multi-level model and care pathway model. The MATRIx multi-level model and MATRIx care pathway model were combined together to create a draft framework. This had the care pathway along the top, and the multi-level model down the side, with each concept placed in the corresponding box.

(b) Revision with the project management group. Feedback on the draft framework was obtained from members of the project management group (AE, CR, AH, EF, FA, JS & SA). This included researchers and clinicians with expertise in maternal and child health, perinatal health and wellbeing, perinatal mental health care, strategy and transformation and clinical psychology. All members work in the UK or NHS. Suggestions made by members of the project management group included considering the importance of outcome measurements; integration of different services; logistical issues such as co-location; and inclusion of a step between organisation and political structure e.g., service managers.

(c) Incorporating results. Another version of the draft framework was developed after incorporating the feedback from the previous step.

(7) Validating the conceptual framework

The aim of this phase was to validate the framework(23). This was done using two steps: (i) stakeholder meetings to ascertain whether the proposed framework and its concepts made sense to practitioners and other stakeholders; and (ii) assessing the confidence with the evidence. This step is in line with the development of NICE guidelines(31) where evidence is

rated using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE)(32) to assess the certainty of evidence before recommendations are made.:

(a) Stakeholder meetings. Following the approach of Leamy et al.(33), three panels of stakeholders were consulted about the draft conceptual framework. Panels were held online via Microsoft Teams™ and led by members of the core team [JS, SA, RW]. The first panel comprised women, their partners and representatives from UK-based maternity charities that represent pregnant and postnatal women (e.g. National Childbirth Trust (NCT), Maternal Mental Health Change Agents). The second panel comprised Health Professionals (HPs) from different disciplines working for relevant NHS services. The third panel comprised NHS service commissioners and policy makers (see Table 1).

During the stakeholder meetings, attendees were asked to review the conceptual framework and consider questions such as:

- How does the framework fit with your experience of implementing/accessing PMH Services?
- Does the framework include everything? Have we missed anything? What?
- In your view, what are the most important facilitators/barriers to implementing/accessing PMH services?
- In your view, what are the top recommendations for clinical practice?
- How can we disseminate this for most impact?

Conversations were recorded, and suggestions and recommendations were noted. These are summarised in Table 3 and online supplementary materials 3.

(b) Using the GRADE-CERQual approach to assess confidence with the evidence. The GRADE-CERQUAL (Confidence in the Evidence from Reviews of Qualitative research) approach was used to assess the confidence of the results for each of the concepts in the framework (34). To do this, empirical papers and feedback from stakeholders

were assessed on their methodological limitations(35), coherence(36), adequacy of data(37), and relevance of data(38) for each concept (see Table 2).

Methodological limitations. This refers to the “extent to which there are concerns about the design or conduct of the primary studies that contributed evidence to an individual review finding”(35) p. 26). Methodological limitations were assessed in two ways, and more details can be found in each individual paper(18,21). In brief, for Review 1 the methodology sections of included studies were assessed for quality with the Joanna Briggs Critical Appraisal Tools for qualitative research(39), cross-sectional studies(40), and text and opinion(41). For Review 2, methodology sections of included reviews were appraised using A Measurement Tool to Assess Systematic Reviews-2 (AMSTAR 2) criteria which looks at factors such as the research question, search strategy and data extraction(42). See supplementary material 4 for the methodological limitations table.

Coherence. This refers to “how clear and cogent the fit is between the data from the primary studies and a review finding that synthesises that data” (36), p.34). Coherence was assessed by looking at the evidence assigned to that concept and identifying any outliers or ambiguous elements in the data. To do this, a summary from each of the papers included within a concept was written and outliers/ambiguous elements identified (see supplementary materials 5)

Adequacy. This refers to the “overall determination of the degree of richness as well as the quantity of data to support a review finding” ((37), p. 44). Adequacy was assessed by looking at both the quantity and richness (‘thickness’ and ‘thinness’) of the data for each concept. In the case of this research, a ‘thin’ description was defined as a set of statements rather than a description which provides the context of experiences and circumstances(43). An example of a ‘thin’ description is this quote about HPs dismissing women’s symptoms(44):

“[The study authors] found that women also felt that providers were downplaying the symptoms they were experiencing”(44)

An example of a ‘thick description’ about the same topic is:

“Having symptoms dismissed or attributed to factors other than PPD [postpartum depression] by HPs led to women ‘remaining silent.’ Some women perceived that their difficulties would only be taken seriously when there were concerns about risk of harm to themselves or the infant. One woman said, ‘I kept going to this doctor and he used to give me a pep talk and send me home...’”(45).

It is argued that the extent to which a text provides a thick description shows evidence of the authenticity of the results(46). See supplementary materials 6 for the adequacy ratings.

Relevance. This refers to “the extent to which the body of data from the primary studies supporting a review finding is applicable to the context” ((38), p.52). Relevance was assessed by identifying the country and health system of each study within a concept. This research was funded by the National Institute for Health and Care Research to develop recommendations for UK policy, so we defined direct relevance as studies carried out in the UK/NHS (or for Review 2, where more than 50% of studies included in a systematic review were carried out in the UK/NHS). See supplementary materials 7 for the geographical distribution of studies, and supplementary materials 8 for relevance ratings.

Overall confidence rating. The confidence of each of these four aspects was rated as: High confidence, moderate confidence, low confidence and very low confidence by RW. This meant that each concept had four specific confidence ratings. All four confidence ratings were then combined (see Table 2) to give an overall confidence rating for each concept. Where a concept had an even split of ratings and the ratings were next to each other in quality (e.g., high, high, medium, medium) the rating assigned to the ‘relevance’ of a concept was given a higher weighting. Where a concept had an even split of ratings, but the ratings were apart from each other in terms of quality (e.g., high, high, low low), the rating in the middle of these was given (e.g., medium). A decision was made to not assign any higher than ‘low confidence’ to concepts where adequacy was given a ‘very low’ rating. This was to avoid

putting too much emphasis on concepts where more research is needed. A decision was made to keep concepts that were rated as having 'very low' or 'low' confidence and these were highlighted for future research. See supplementary materials 9 for the overall confidence ratings of concepts.

(8) Rethinking the conceptual framework

This step involved finalising the conceptual framework. This was done in two steps:

(a) Final revision with the project management group. The most recent draft of the conceptual framework and the overall CERQual rating for each concept was discussed with members of the project management group (AE, EF, FA, HC, JH, JS, RC, SH, SA). Feedback consisted of two main points. The first related to whether concepts with very low/low confidence ratings should be removed. As the majority of these concepts related to under researched populations removing them from the framework would perpetuate the cycle of under representation of these groups. It was therefore decided to include all concepts in the framework but provide an indication of the confidence rating scale. Recommendations for practice should be based on concepts with high/moderate confidence ratings, and recommendations for research based on concepts with low/very low confidence ratings.

The second point related to the language used. The framework presented was a framework of barriers, and it was decided that the negative language may act as a barrier itself. It was suggested that a framework of facilitators might also be appropriate and useful.

(b) Final revision with the core team. For final revisions members of the core team met for a one-day workshop to consider all the feedback given. It was agreed the following changes should be made:

- (1) The decision to make two versions of the conceptual framework: one specifically related to barriers to PMH care, and the second related to facilitators to PMH care. The data were re-assessed, and barriers and facilitators were separated.

- (2) The language of the two versions of the framework was scrutinised to remove blaming or negative language.
- (3) Some of the HP level barriers and facilitators (e.g., training and heavy workloads) were moved to the service manager level. This is because it is mostly the service's responsibility to provide this rather than the HPs.
- (4) Based on the funding structures in the UK, 'funding complexities' was moved to commissioner level, rather than government level. Although the government provides a set amount of funding for PMH, the complexities of using this funding most effectively to provide PMH services are more at the commissioner level.
- (5) The framework was reviewed to ensure graphics and icons were representative and inclusive.

Making recommendations for practice and future research for perinatal mental health assessment, care and treatment

Recommendations for practice and policy were developed from the conceptual frameworks. Where a concept had high or moderate confidence in the evidence, a recommendation to enact this concept in practice was made. This was firstly done by reframing the barriers into answers to the question "What would help to improve perinatal mental health identification, assessment and treatment?", and by looking at the guidance provided by stakeholder groups in relation to recommendations (see supplementary materials 3). Examples of good practice were also taken from the stakeholder consultation events, and from the NHS Future Platform. Where the confidence with the evidence was low or moderately low, recommendations for future research were made.

Results

Description of the conceptual frameworks

The two versions of the MATRIx conceptual framework were created to understand key barriers and facilitators to PMH identification, assessment, care and treatment in order to improve PMH services. Syntheses of the reviews identified 78 key factors that can impact on PMH care (see supplementary materials 10). These are summarised in two versions of a conceptual framework which provide pictorial representations of 66 barriers (see supplementary materials 11) and 39 facilitators (see supplementary materials 12) across the care pathway and at multiple levels (note: there is overlap with 27 of the barriers and facilitators.).

Confidence in results

Of the 78 concepts identified, 14 were assigned a rating of high confidence with the evidence. Just under half of the concepts (n = 33) received a rating of moderate confidence. These will be discussed in more detail below. Slightly fewer (n = 25) concepts received a rating of low confidence, suggesting more research is needed. These concepts included women's knowledge and understanding of the causes of mental illness, and where to go to seek help; demographic factors such as the woman's ethnicity or current symptoms/diagnoses; HPs focussing too much on the infant; shared decision making between women and HPs; co-location of buildings; care with a dedicated mental health champion; and care that offers an opportunity to talk.

Only four concepts received very low confidence rating, suggesting more research is needed into women's age or previous diagnoses/symptoms impacting help-seeking and access; the provision of supervision within organisations; and organisational guidelines.

Barriers

The conceptual framework for barriers to PMH care is shown in Figure 2 and online supplementary material 11 (in colour). Individual level barriers with moderate and high confidence in the evidence included (in order of evidence confidence): being scared of social

services involvement or being judged to be a 'bad' mum; having a lack of support from family and friends or them having negative perceptions about perinatal mental illness (PMI); being socially isolated; not understanding HPs' role in relation to PMH; not understanding what PMI is; believing PMI symptoms are due to physical causes, or are a normal part of motherhood; believing the best way to cope with symptoms is to ignore them or minimise them; and lastly, previous negative experiences of mental health care.

HP level barriers with moderate and high confidence included: HPs being dismissive or normalising women's symptoms or not recognising help seeking; appearing too busy; having poor knowledge about services, referral pathways and PMH in general; HPs having low confidence about addressing PMH; and lastly HPs carrying out assessment or screening in a tick-box or impersonal way.

Interpersonal level barriers with moderate and high confidence were no trusting relationship between HPs and women; language barriers; and a lack of open and honest communication.

At the organisational/service manager level, barriers with moderate and high confidence in the evidence were: inadequate workforce therefore HP's workload is too heavy; inadequate provision of PMH training for HPs; lack of continuity of carer; lack of culturally sensitive care; difficulties with technology related to care; lack of collaboration within & between services; lack of logistical support offered by services; insufficient information provided about the care; inflexible care; care that is not appropriate to women's needs; confusing wording of assessment tools; assessment or screening viewed as unacceptable and lastly, unclear or confusing assessment and referral processes within an organisation.

At the commissioner level, all three barriers had high or moderate confidence with evidence, and these were: lack of appropriate or timely services; complexities of funding, resources and financial reimbursement; and confusing referral pathways.

Political level barriers were rated as having moderate confidence with the evidence: women being refugees or immigrants, the cost of healthcare, and women's economic status. At the societal level, stigma, culture and maternal norms of being a “good mother” and a “strong woman” were all rated as having high confidence with the evidence.

Facilitators

The conceptual framework for facilitators to PMH care is shown in Figure 2 and online supplementary material 12 (in colour). Fewer facilitators to PMH care were identified which suggests more research is needed.

Individual level facilitators with high or moderate confidence in the evidence were women recognising that something is wrong; having supportive family and friends and a strong support network. Previous positive experiences of mental health services were also a facilitator.

At the HP level, facilitators with high confidence were HPs possessing valued characteristics (e.g., being trustworthy, empathetic, kind, caring with a genuine interest, going above and beyond to meet women’s needs); and HPs having knowledge of other services and referral pathways. Other facilitators with moderate confidence were HPs having similar demographics to women; having good knowledge and understanding of PMH; and feeling confident in addressing PMH; as well as making time to address PMH; and carrying out assessment in an individualised way.

Interpersonal level facilitators were the direct opposite to the barriers. Development of a trusting relationship and rapport between HPs; and women being able to communicate open and honestly with HPs were both facilitators with moderate or high confidence in the evidence.

At the organisational/service manager level, facilitators with a high level of confidence were the provision of continuity of carer and culturally sensitive care for women;

adequate workforce provision; and provision of optimal training for HPs in PMH.

Furthermore, technology that worked well and was fit for purpose was a facilitator to PMH care. For example, being easy to use without any bugs/glitches and being accessible to all who needed it. Facilitators with moderate confidence were individualised, person-centred, flexible care that is appropriate to women's needs and delivered face to face; the provision of logistical support for women; or care that is delivered at home; group or peer support; sufficient information about available services; collaboration within and between services; and clear organisational assessment and referral processes.

At the commissioner level, one facilitator with moderate confidence was clear referral pathways.

Recommendations

Detailed and specific recommendations can be found in online supplementary materials 13. They are split by level (e.g., individual, HP etc) with the concepts on the left and the related recommendation on the right. Before each recommendation is a numerical key indicating to whom this recommendation is addressed. Some of these recommendations are summarised below.

Recommendations for policy

Many elements of the conceptual frameworks can be modified by policy makers and government activity (e.g., workforce provision, healthcare capacity, training etc). Therefore, we recommend policy makers review the frameworks and take comprehensive, strategic and evidence-based efforts to ensure there is an effective system of PMH care.

Funding is required to ensure high quality care provision. Therefore, the provision of a comprehensively researched and adequate budget is needed. Funding needs to be adequate for service needs and easily accessible. Funding structures may need to be revised depending on the needs of the community in which the service is delivered (e.g., affordable health

insurance where free healthcare is not available). In some cases, it may be possible that funding has been provided but services are not being implemented as effectively as possible(18). In these cases, health economics evaluations could be considered to ensure that health services are using funds appropriately, or to understand how funds could be used in a more effective way(47).

The reduction of health inequalities is needed. It is therefore advisable that policy is put in place to improve equality: (i) between the sexes/genders by ensuring equal rights for women and men; (ii) in terms of ethnicity, for example changes at the legislative level are needed to protect immigrants from being penalised for, or prevented from, accessing healthcare; and (iii) in terms of income, a fair and easily accessible welfare system is needed to prevent health inequalities based on deprivation.

Recommendations for practice

In terms of care, it is recommended that care is developed with women and is personalised and culturally appropriate. Increasing the flexibility and accessibility of services should be done through offering home visits and, where this is not possible, providing out-of-hours appointments located in an area with good transport links and an accessible building (e.g., ramps). In addition, service managers could consider the provision of virtual consultations using web-based platforms, but women should be given the choice about whether they would prefer virtual or face-to-face care.

Culturally sensitive care and increased accessibility of care is required for women who are unable to or have difficulty speaking the country's language. This can be done via pictorial aids, the purchase of products such as Language Line, or through collaboration with translation agencies. Where these tools are already available within a service, these should be utilised and additional time should be given for consultations with women where they are unable to, or have difficulty speaking the country's language.

Technology can be a facilitator to PMH services in terms of assessment, referral and intervention. Thus, technology systems should be co-produced with HPs and women to ensure ease of usability and integration into the workflow.

Within services, where not already implemented, multi-disciplinary teams should be created to facilitate choice and personalised care and ensure an adequate workforce to meet women's needs. Culturally sensitive care could also be improved through the recruitment and retention of healthcare providers from diverse backgrounds(48). Silo working needs to be broken down, and service managers should encourage collaborative and joint working. The building of a coalition of health visitors, midwives, general practitioners, therapists, psychologists and psychiatrists is needed to encourage referral and reduce the risk of women falling out of the care pathway. Collaboration between services is also needed with a focus on the identification and building of working relationships and networks with other services (e.g., Citizens Advice Bureau).

HPs should be provided with high quality training that is delivered face-to-face and incorporates role play simulators where appropriate. This should include training in cultural sensitivity and cross-cultural mental health. Training time for HPs should be built into workloads and be protected. Ideally, training should be provided as part of health professionals qualification training, not just afterwards. Furthermore, there is a move within countries, such as the UK, to provide care that is trauma informed. This means care that recognises the impact of trauma and works to prevent re-traumatisation(49). Given the association between trauma and mental health(50), it is important that trauma-informed training is considered.

Recommendations for research

Future research should focus on addressing the concepts assigned low and very low confidence within this project, e.g., women's beliefs about the causes of mental illness and

how this may impact help-seeking. Outside of the perinatal period, it has been suggested that within Western society, the biomedical approach to mental health provision can be a barrier to mental health care, as it is not sensitive to different cultural constructions of mental health problems(51). Furthermore, research suggests that treatments that diverge from standard Western treatments e.g. meaning making, spiritual treatments, narrative or story telling interventions can be helpful to individuals by improving their quality of life(52) and reducing trauma symptomology(53,54). Future research should investigate if this is the case in perinatal populations.

At the HP and interpersonal level research should look at whether HPs focussing primarily on the infant is a barrier to PMH care and if shared decision making between women and HPs is a facilitator. At the organisational level, future research should investigate the impact of co-location of buildings; care with a dedicated mental health champion; care that offers an opportunity to talk; the provision of supervision within organisations; and organisational guidelines on PMH care access and implementation.

Discussion

Summary of main findings

Syntheses of the evidence identified 78 key factors that can impact PMH care. These are summarised in two conceptual frameworks which provide pictorial representation of 66 barriers and 39 facilitators across the care pathway and at multiple levels. These frameworks were used to provide evidence-based recommendations for national health service policy, practice, and research.

Relevance to the wider literature

Concepts identified on all levels of the conceptual framework are supported by research carried out with the wider population. For example, at the individual level, previous research has identified poor mental health literacy in young people and adults(55,56), fear of

judgement or consequences of help seeking/disclosure in adults(57), and poor social support in those who self-harm(58) as barriers to help-seeking. At the HP level, non-perinatal populations report negative attitudes from HPs in relation to their mental illness, or being dismissed or not listened to by HPs(59,60). Dismissive and negative attitudes from HPs are likely to be due to societal issues such as stigma(61,62), but also commissioner level issues such as poor training(62) and a heavy workload for HPs (63,64) due to understaffing. At the interpersonal level, other research suggests communication with HPs influences individuals' experiences of mental health care(65,66). At the organisational level, other research suggests appropriateness of care is important for keeping people engaged(56,67–69). At the commissioner level, previous research has found a lack of services(70–72) and long delays between referral and start of treatment(73) are barriers to care. Political factors such as economic status, income and the cost of healthcare were barriers to PMH care. Multiple studies have found that these political factors can exacerbate mental health difficulties(74,75) and impact help-seeking(72,76,77) for mental health problems. Lastly, at the societal level, previous research has also found stigma is one of the leading barriers to help-seeking in non-perinatal populations(57,78,79).

Strengths and limitations

The MATRIx conceptual frameworks have multiple strengths. Firstly, a comprehensive method, which involved following a systematic process, was used for their development. Next, further validation of the MATRIx conceptual frameworks was carried out in multiple stages, with both stakeholder perspectives and confidence of evidence (GRADE CERQual approach(34) taken into account. Lastly, the MATRIx conceptual frameworks were extensively revised based on the feedback received during the validation stage, showing the appropriateness of these models to both the evidence and NHS stakeholder experience.

However, there are several limitations to the MATRIx conceptual frameworks. The research analysed during the development of the conceptual frameworks related specifically to women, and mothers. A decision was made to not look at the research including fathers because this is a topic that needs investigating in its own right. This means that the results from this review may not be generalisable to fathers, partners and families. These reviews also excluded services for substance misuse because these disorders raise unique challenges in terms of assessment and treatment that may not be generalisable to other disorders. Similarly, although we included international research whilst developing our conceptual frameworks, we rated studies and reviews carried out in Low- and Middle-Income Countries and countries without universal access to healthcare as being less relevant during the CERQual evaluations. This means our recommendations are unlikely to be universally relevant. Another limitation is that whilst identifying literature, only reviews published in academic journals and written in English language were included. Relevant reviews from health services, charities, third sector organisations and other grey literature may have been missed. Further, the use of CERQual to evaluate confidence in the findings is a strength, but ratings were done by one researcher (RW) which may mean they are slightly less valid. However, the CERQual approach is described thoroughly and specific rules for each of the assessments were discussed and agreed with the research team to ensure ratings were standardised.

Recommendations for future research and practice

There were some limitations in terms of the evidence identified to inform the conceptual frameworks, and therefore future research should address this. These include: (i) identifying more facilitators to PMH care, as most of the research focussed on barriers; (ii) understanding barriers and facilitators based on the severity of illness and different PMH difficulties; (iii) barriers and facilitators to PMH in universal, primary care or inpatient care;

(iv) research with more diverse populations including the transgender community; (v) research carried out in lower-middle income countries; and lastly, (vi) feedback from members of the research programme management group introduced the idea of incorporating service outcome measurements into the conceptual framework (stage 6b). This was not identified from the literature and may reflect the nature of service commissioning in the NHS, where services need to show they are working in order to be recommissioned. Thus, outcome measures to evaluate services need further attention.

Conclusion

The MATRIx framework led to the development of evidence-based recommendations for practice and commissioning (supplementary materials 13). Despite being aimed at different stakeholder groups, these recommendations are all highly intertwined and the uptake of one would be likely to have positive effects on others. For example, the continuation of prioritising funding for PMH services will impact on the amount service commissioners can allocate to PMH services. This should impact on the workforce, increasing opportunities for continuity of carer models, staff training and other resources such as translators and logistical support.

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Declaration of Interest—Susan Ayers receives research funding from the NIHR, British Council, Public Health England and Barts Charity. Susan is chair of the Society of Reproductive and Infant Psychology. Abigail Easter receives funding from the NIHR Applied Research Collaboration South London. Elizabeth Ford receives research funding from the EPSRC and honorarium funding from the US National Institute of Ageing. She is also a member of Sussex Integrated Dataset Programme Capability Board. Jennifer Holly works for the NCT

Funding—Susan Ayers, Abigail Easter, Elizabeth Ford, Judy Shakespeare, Jennifer Holly and Rebecca Webb all received funding from the NIHR Health Services and Delivery Research Programme (NIHR128068) for this research project.

Acknowledgements – We would like to acknowledge the MATRIx study team: Fiona Alderdice, Elaine Clark, Helen Cheyne, Rose Coates, Evelyn Frame, Simon Gilbody, Agnes Hann, Sally Hogg, Sarah McMullen, Camilla Rosan, Debra Salmon, Andrea Sinesi, Clare Thompson, and Louise R Williams for their input throughout the project. Thanks are also due to Nia Roberts who conducted the literature searches for both evidence reviews, and to Nazihah Uddin and Georgina Constantinou who assisted with screening, methodological quality appraisals and data extraction for the reviews.

Author Contribution – Rebecca Webb was involved in the design of the research, carried out the data analysis, wrote up the paper and proof-read and edited the work. Elizabeth Ford was involved in the design of the research and provided detailed feedback on the manuscript. Abigail Easter was involved in the design of the research and provided detailed feedback on the manuscript. Judy Shakespeare was involved in the design of the research and provided detailed feedback on the manuscript. Jennifer Holly was involved in the design of the research and provided detailed feedback on the manuscript. Sally Hogg provided detailed feedback on the manuscript and was part of the final revisions of the

conceptual frameworks. Rose Coates provided detailed feedback on the manuscript and was part of the final revisions of the conceptual frameworks. Susan Ayers was the project PI, was involved in the design of the research and provided detailed feedback on the manuscript.

Data Availability - The data that support the findings of this study are available from the corresponding author, [RW], upon reasonable request.

Ethics Statement – This research was carried out using secondary data, therefore no ethical approvals were required.

Consent Statement – This research was carried out using secondary data, therefore no consent was required.

Prospero registration. Review 1: CRD42019142854.Review 2: CRD42019142854