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Project20: Maternity care mechanisms that improve (or exacerbate) health inequalities. A realist evaluation

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ABSTRACT

Background: Women with low socioeconomic status and social risk factors are at a disproportionate risk of poor birth outcomes and experiences of maternity care. Specialist models of maternity care that offer continuity are known to improve outcomes but underlying mechanisms are not well understood.
Aim: To evaluate two UK specialist models of care that provide continuity to women with social risk factors and identify specific mechanisms that reduce, or exacerbate, health inequalities.
Methods: Realist informed interviews were undertaken throughout pregnancy and the postnatal period with 20 women with social risk factors who experienced a specialist model of care.
Findings: Experiences of stigma, discrimination and paternalistic care were reported when women were not in the presence of a known midwife during care episodes. Practical and emotional support, and evidence-based information offered by a known midwife improved disclosure of social risk factors, eased perceptions of surveillance and enabled active participation. Continuity of care offered reduced women's anxiety, enabled the development of a supportive network and improved women's ability to seek timely help. Women described how specialist model midwives knew their medical and social history and how this improved safety. Care set in the community by a team of six known midwives appeared to enhance these benefits.
Conclusion: The identification of specific maternity care mechanisms supports current policy initiatives to scale up continuity models and will be useful in future evaluation of services for marginalised groups. However, the specialist models of care cannot overcome all inequalities without improvements in the maternity system as a whole.

1. Introduction

Social risk factors associated with inequalities in maternal and neonatal outcomes include Black and minority ethnicity, poverty, young motherhood, homelessness, difficulty speaking or understanding English, migrant or refugee status, domestic violence, mental illness and substance abuse [1–12]. It is hypothesised that the current fragmented service women experience when accessing maternity care is directly linked to these health inequalities [1,13–15]. Therefore, policies to tackle inequalities increasingly focus on offering continuity of midwife-led care (CMLC) where a known midwife is the lead professional in the planning, organisation and delivery of care given to a woman from initial booking to the postnatal period (See Appendix A for definitions). The UK's National Health Service (NHS) Long Term Plan [16] was published by the UK government and included an aim for 'most women' to be offered continuity of care throughout their pregnancy, during birth, and postnatally by March 2021. This is currently a far cry from the reality of a fragmented UK maternity system significantly impacted by the global pandemic [17,18].

The Cochrane review of midwife led care [19] demonstrates a strong evidence base for improved pregnancy outcomes and experiences for women who receive CMLC- see Table 1 for a summary of the evidence

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from the review and wider literature. The review did not report on whether outcomes differed for women with low socioeconomic status and social risk factors but recommended that future research should explore this population and address the underlying mechanisms of the improved outcomes, whether the observed benefits can be attributed to continuity, a midwifery philosophy, the quality and degree of relationship between the midwife and woman, or other factors such as place of care [19].

Although the research summarised in Table 1 goes some way in piecing together the puzzle of mechanisms that contribute to improved outcomes for women and their families, there is still a significant knowledge gap in how CMLC leads to outcomes such as a reduction in premature birth and fetal loss, if the improved outcomes translate for women with low socioeconomic status and social risk factors, thus reducing health inequalities for this population, and how.

A realist synthesis exploring how women with social risk factors experience maternity care in the United Kingdom [1] found that many women described paternalistic care and discrimination from healthcare professionals and perceived maternity services as a threat that could lead to the removal of their children. These negative perceptions were often mitigated when women had the opportunity to develop relationships with the midwives providing their care, allowing them to regain control and demonstrate their parenting abilities. From the healthcare perspective, focus groups with midwives providing CMLC to women with social risk factors [34] highlighted how 'two-way trust' led to women disclosing sensitive information as and when they felt safe to do so. A particularly important finding was that concerning place of antenatal care. Midwives working in a community-based model of care reported how their location enabled them to meet women's multifaceted needs and encouraged them to engage with local support services through knowledge of the community and straightforward referral processes. It is hypothesised that culturally competent and community-based models of care which adopt a life course approach might help to reduce maternal health inequalities, enhance care coordination with maternity services and improve the outcomes and experiences of women living socially complex lives [31,35,36]. This impact of place-based care, that is whether maternity care is situated in the hospital, community, or home environment, is poorly understood, particularly for women with social risk factors who are more likely to be socially isolated and struggle to integrate with their local community.

The lack of evidence around the exact mechanisms that influence women's outcomes means the development of robust, effective services is difficult. Evaluating different models of care and identifying specific mechanisms will help inform the organisation of future services for this 'at risk' population. This study is part of a wider evaluation of two specialist models of midwifery care, one based in the hospital and the other within the community, for women with low socioeconomic status and social risk factors. This aspect of the evaluation aimed to identify the specific underlying mechanisms of the specialist models that tackle, or perhaps exacerbate, health inequalities.

Table 1
Summary of evidence on continuity of midwifery care models.

Women who received models of midwife led continuity of care:

- were seven times more likely to be attended at birth by a known midwife, 19 % less likely to lose their baby before 24 weeks', 15 % less likely to use regional analgesia in labour, 24 % less likely to experience pre-term birth, and 16 % less likely to have an episiotomy [19]
- reported higher rating of maternal satisfaction with information, advice and explanation, more choice in (and positive experience of) place of birth and pain relief, were more likely to feel in control in labour and proud of themselves, and less anxious [19,20]
- had higher levels of satisfaction with the antenatal, intrapartum and postnatal maternity care they received [21]
- experienced reduced intervention rates including more spontaneous vaginal delivery, and less caesarean section, epidural analgesia, and episiotomy. Infants were less likely to be admitted to neonatal intensive care. No infant outcomes favoured standard care and the reduction of interventions seen in continuity of midwifery care models did not appear to jeapordise infant health [22,23]

Women with low socioeconomic status and social risk factors who received midwifery led continuity of care:

- experienced improved birth outcomes including less intervention and caesarean section, lower rates of admission to the neonatal unit, and more referrals to support services [24–26]
- experienced reduced risk of preterm birth, increased access and engagement with services, disclosure of risk factors, acceptance of support, greater emotional resilience, ideal gestational weight gain, less smoking/drug use, and fewer untreated genito-urinary infections [26,27]
- reported positive experiences of maternity care [28–31]
- PROJECT20: The specialist models evaluated appear to mitigate the effects of inequality, significantly increased the use of water for pain relief and skin-to-skin contact between mother and baby. Women attending the community-based specialist model were more likely to experience induction of labour, and less likely to have a preterm birth, low birthweight infant and social care involvement at discharge from maternity services [32]

Models of midwife led continuity of care are also associated with other benefits:

- Cost reduction appears to be achieved through reorganisation of maternity services to increase group practices and continuity of care models care. This is thought to be due to shorter hospital stay for mother and baby, fewer tests and interventions, and increased flexibility to match input of midwives' time to women's needs, especially in labour and birth [19,23]
- Mitigating the effects of high levels of stress and anxiety experienced by women in the context of a natural disaster on postnatal mental health [33]

1.1. Aim

To evaluate two UK, urban-based specialist models of midwifery care that provide continuity to women with low socioeconomic status and social risk factors and identify specific mechanisms that reduce, or

Statement of Significance

Problem or Issue

Women with social risk factors are at a disproportionate risk of poor birth outcomes and experiences of maternity care. The underlying mechanisms of these health inequalities and how maternity care can be organised to improve outcomes and experiences is not well understood.

What is Already Known

Continuity of care is known to improve birth outcomes and experiences for women. Although this evidence base for improved outcomes is strong, less is known about how, why, and in what contexts this approach works. Care providers and policy makers need to understand these underlying mechanisms so that effective models of maternity care can be developed that meet the needs of women and their local communities.

What this Paper Adds

Specific mechanisms have been identified that can both improve and exacerbate health inequalities for pregnant women with social risk factors. These mechanisms can inform the implementation, effectiveness and evaluation of specialist models of care that aim to reduce maternal and infant inequality.

exacerbate, health inequalities.

Objectives:

1) Identify the specific contexts and mechanisms that impact on women's outcomes and experiences of pregnancy, birth and maternity care.
2) Explore the differences between the models of care being evaluated, such as *who* provides care (one named midwife or a small team of midwives), *where* the model is based (hospital or community), and *how* women access the model (universal or inclusion criteria).
3) Refine initially constructed programme theories to develop a set of specific, detailed guidance that can be generalised to wider populations and enable those developing maternity services understand the key components that lead to improved outcomes.

2. Methods

2.1. Realist Methodology

Realist methodology is a theoretically informed, pragmatic approach to evaluating an intervention such as a specialist model of care, to understand how it is working or not working in different contexts [37]. A realist question is not 'does it work?' but 'how, for whom, in what circumstances does it work'? This allows those implementing interventions in different contexts and settings to refine, scale-up, or even withdraw the service [38]. Realist methodology is typically used in the evaluation of complex interventions, which is why it is particularly suited to exploring multifaceted models of maternity care for women with complex needs, within a complex health system. The pragmatic nature of the realist approach attempts to cut through this complexity to focus on the most important aspects of the intervention; usually the human response [39]. Theories about how an intervention is thought to be working are tested, refined, and articulated through context (C) + mechanism (M) = outcome (O) configurations (referred to as 'CMO' configurations) to provide specific, practical recommendations [38]. The realist paradigm assumes that we cannot separate ourselves from what we know [37]. Therefore, research team utilised their experiences and knowledge to identify and refine programme theory alongside the insights of a group of service users with lived experience of social risk factors and pregnancy.

This research was conducted in three stages: 1) specific programme theories (PT) were constructed from the realist synthesis of how women with social risk factors experience UK maternity care [1], focus groups with the specialist model midwives [34] and service user engagement (a diverse group of women who recently used maternity care, who contributed to the planning and analysis of this research). See Appendix B for the full list of programme theories tested in this paper and integrated into the interview schedule. 2) PT's were tested through analysis of theory driven, longitudinal interviews with twenty women with social risk factors, and their families. 3) Refined programme theories were categorised into three 'middle range theories'. Middle range theories help conceptualise complex reality so that empirical testing of the more specific programme theories becomes possible and generalisable [40]. They are often established after initial programme theories have been defined and aim to explain causation at a more abstract and generalisable level. Each middle range theory was then broken down into CMO configurations to demonstrate the inner workings of the theory. This process is illustrated in Fig. 1:

2.2. Setting

Two inner-city National Health Service (NHS) maternity providers (Service A and Service B) in the UK that provide care to a multi-cultural, socioeconomically diverse population were purposively selected. Each provider offered a well-established specialist model of care that aimed to provide continuity from a team of 6 midwives throughout pregnancy, birth and the postnatal period. One model, referred to as the community-based model (CBM) was placed within an area of significant health inequality within a community health centre, providing care for those living locally. Care was organised between the team of 6 midwives and women had the opportunity to meet the entire team during their pregnancy through appointments or at coffee mornings. The other model, referred to as the hospital-based model (HBM) was based within a large, inner city teaching hospital setting and provided care for women based on an inclusion criteria of social risk factors. Women were allocated one midwife whom they saw for the majority of their care, with the rest of the team providing care when they were not on duty. As women often compared their experiences to previous pregnancies under standard maternity care, we have included a description of the different types of care women might experience at each maternity provider. See Table 2 in Appendix A for full descriptions of each model of care.

2.3. Data collection

Semi-structured, longitudinal interviews were carried out in a setting of the woman's choice at around 28- and 36-weeks' gestation, and 6-weeks after birth. The women's family members and friends were also invited to participate in the interviews to give additional insight. Through purposive sampling, women were identified by the specialist model midwives providing their care if they met the following inclusion criteria:

- Low socio-economic status (SES) calculated by an Indices of Multiple Deprivation [IMD] score [41] of higher than 30 AND/OR secondary school as the highest level of education attained.

The IMD score was calculated using the woman's postcode to give a composite measure using routine data from seven domains of

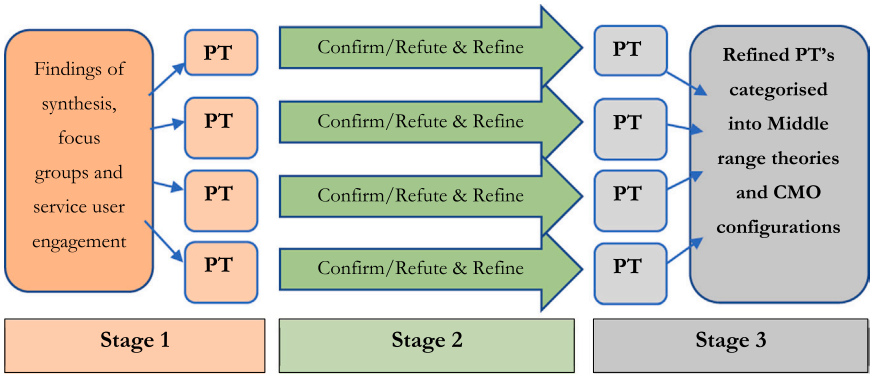

Fig. 1. Process of theory development and refinement.

Table 2
Characteristics of women interviewed.

Characteristic	Community based model (CBM) n=10	Hospital based model (HBM) n=10	TOTAL n (%) n=20
Ethnicity and migration status			
Born outside the UK:	7	5	12(60)
Asian	0	2	2(10)
Black African	3	0	3(15)
Black Caribbean	0	1	1(5)
White	4	2	6(30)
Asylum seeker/ refugee*	2	3	5(25)
Born inside the UK:	3	5	8(40)
Asian British	1	1	2(10)
Black British	2	1	3(15)
White British	0	3	3(15)
Age			
18-24	0	3	3(13)
25-29	1	1	2(2)
30-34	5	5	10(50)
>34	4	1	5(25)
Parity			
Primiparous	5	3	8(40)
IMD Decile (2019)			
Most deprived 1st + 2nd	9	10	19(95)
3rd and 4th	1	0	1(5)
Least deprived 5th-10th	0	0	0
No of social risk factors			
1	3	0	3(15)
2	0	2	2(10)
3	2	0	2(10)
4	1	1	2(10)
≥5	4	7	11(55)
Mental Illness			
Common	5	9	14(70)
Severe	1	1	2(15)
Level of education			
Secondary school only	5	6	11(55)
Completed college	4	3	7(35)
Completed university	1	1	2(15)
Occupation Status (NS- SEC)			
8 (long term unemployed)	6	8	14(70)
7 (routine occupations)	0	2	2(15)
6-3 (semi-routine)	4	0	4(20)
High medical risk at booking	7	5	12(60)

*Including women whose asylum claim had been refused.

deprivation [42] to identify the most disadvantaged areas in England. Level of education was self-reported and categorised into three groups: no completed education or completed only primary school; completed secondary school; and completed tertiary (university or college). The highest level of education attained was chosen as an indicator of deprivation as it has a clear influence on occupational opportunities and earning potential [43]. Indicators measuring life course socioeconomic position, for example income, housing, relationship and occupation, and any social risk factors were also collected and reported. Social risk factors were not included in the criteria as the research aimed to explore whether women are more likely to disclose social risk factors during their pregnancy if they received care from the specialist model. That said, all women were experiencing at least one social risk factor in addition to low SES and/or limited education.

Interviews were undertaken by a realist-interview trained academic and midwife using Manzano's [44] approach to refine programme theories and improve rigour through the 'teacher-learner' relationship. In this case the interviewer presented theories extracted from a realist synthesis [45] and asked the women about their experiences to confirm, falsify, explain and refine the theories. See Appendix B for the full interview guide and programme theories tested. The women's insights are not considered to be constructions, but 'evidence for real phenomena and processes' [46] that contribute to the overall evaluation of the programme's effectiveness. The realist-informed interview guide included in Appendix B, allowed for both the testing of pre-constructed theories, and new programme theories to emerge. The realist trained interviewer was present at all interviews and those conducted by a native language speaker were interpreted in English for transcription purposes. Verbatim transcription of interview data was carried out by a service external to the research team.

2.4. Data analysis

The qualitative data were coded using NVivo v.12 and analysed using a thematic framework analysis [47]. This method, and software, allowed for the organisation of a large qualitative dataset into a coding framework matrix, developed using the previously constructed programme theories [1,34] and to uncover new theories. It also allowed us to see the differences in women's experiences depending on their individual contexts. Validity was strengthened through a diverse service user engagement group who assessed interview transcripts and highlighted where the data confirmed or refuted the initial programme theories, as well as the emergence of new theory. Two members of the research team read and re-read each transcript thoroughly and assigned sections of the text to the programme theories. Similar codes were grouped under higher-order categories to unearth middle range theory.

3. Results

3.1. Participants

Twenty pregnant women with low socio-economic status and/or educational attainment and at least one social risk factor were recruited- See Table 2. All twenty women were under the care of a specialist maternity model that aimed to provide antenatal, intrapartum, and postnatal continuity of care. The friend or family member of five participants were recruited and contributed to the interviews. Eight of the 20 participants were first time mothers and the other twelve had between one and eight children. For five of the multiparous women, this was their first pregnancy in the UK. Based on the 2019 IMD scores [42], 19 participants were in the 1st or 2nd most deprived deciles, with only one in the 3rd and 4th decile group. Twelve participants were born outside of the UK, and nine did not speak English and required an interpreter. All participants were experiencing between one and seven social risk factors including common or severe mental health issues, domestic violence, drug/alcohol misuse, no support, single motherhood, financial and housing problems, learning disability, sexual abuse, trafficking, female genital mutilation, and no recourse to public funds. Five participants were seeking asylum, had refugee status, or had an asylum claim refused and nine had social care involvement during their pregnancy. In addition to these risk factors some participants had experienced other highly traumatic events including fleeing from a war-torn country, the death of a child, the kidnap of a close family member, held in an immigration detention centre, dispersal, had children removed from their care, and

childhood sexual abuse. Throughout the findings the model of care women accessed is identified as 'CBM' for the community-based model, and 'HBM' for the hospital-based model.

3.2. Findings

The findings presented relate to how women with low socioeconomic status and social risk factors perceived their maternity care both within the specialist models, previous experiences of standard maternity care and the wider care spectrum. Table 3 presents the middle range and overarching programme theories within which more granular, specific theories were ordered, tested and refined- see Appendix C. The qualitative data analysis will be described for each overarching programme theory, with example quotations provided for context. The refined programme theories are then presented in Tables 4–6 as CMO configurations to demonstrate the specific contexts, mechanism resources and responses, and their associated outcomes.

3.3. Respectful care and needs-led support

To identify specific mechanisms that are at play in reducing inequality it is important to understand why inequality might exist in the first place. Therefore, the programme theories tested not only 'what works' but also 'what *does not* work, in some circumstances, and why'. The first programme theories generated from previous literature tested women's perceived stigma and experiences of discrimination and impersonal care, with a focus on whether the specialist model of care might protect women from these adverse experiences. See Appendix C for the full list of programme theories tested and the quotations analysed to refine them.

3.3.1. Perceived stigma, discrimination, and impersonal care

Experiences of stigma, discrimination and at times abusive care were commonly discussed when women reflected on previous experiences of standard maternity care or were not in the presence of a known midwife from the specialist model of care. This may have been because the specialist model midwives were busy attending to other women, were not present because the woman was not believed to be in 'established labour', or in the case of the woman quoted below, were not called in by standard care midwives when women presented in labour. As well as traumatic experiences, disrespectful care resulted in women disengaging with healthcare professionals, avoiding services, not being able to breastfeed and waiting for pain relief in labour.

Example quote (see table … for wider range of quotations):

'It's being stigmatised…yeah, I can see why they [black women] would die, be more likely to die…I think that as much as there's less of it now I think that in some cases there is still a bit of discrimination and a bit of racism surrounding, yeah. Race. Social status. My other kids. Yeah, pick one… when I was in labour [standard care

Table 3
Middle range and overarching programme theories tested.

Middle range theory	Programme theories tested
Respectful care	• Perceived stigma, discrimination and impersonal care • Paternalistic care • Establishing support networks to overcome perceptions of surveillance
Information, Choice and Active participation	• Provision of evidence-based information • Accessible, culturally sensitive antenatal education • Help-seeking and escalating concerns
Relational continuity of care	• Continued, supportive presence from a trusted midwife or team • Emotional support and advocacy • Knowing women's social and medical history

Table 4
Programme theory 1: Respectful care and needs led support.

Context	Mechanism (resources)	Mechanism (Response)	Outcome
Perceived stigma, discrimination, and impersonal care			
Women experience stigma, discrimination, impersonal and/or abusive maternity care	Disengagement and avoidance of maternity services Lower uptake of support offered Dismiss professional advice and instead seek advice from disreputable sources	Self-preservation to avoid further stigma and discrimination Lack of trust and mutual respect for healthcare professionals Fear of help-seeking and escalating concerns as seen as a burden or incompetent mother	Missed opportunities to avoid poor pregnancy outcomes Lack of childbirth, infant feeding and parenting preparation Safeguarding concerns raised increasing need for social care involvement and parenting assessments Further isolation and exclusion from the benefits of engaging with maternity care and support services Continued systemic racism and discrimination within maternity services
Recognising and overcoming paternalistic care through listening and co-planning			
Healthcare professionals recognise that women with social risk factors are more likely to experience paternalistic care, as passive patients and strive to ensure women are active, respected participants	Women are listened to in safe environments Co-planning of personalised care to meet women's individual needs Women's expertise of their own body and baby are recognised and respected	Women will feel empowered to become active participants in their care and share their personalised needs Development of two-way trust between woman and health professional Women feel more in control of their pregnancy, birth and care experiences	Women seek timely help and are confident in escalating concerns More effective maternity care meets personal needs and Improved pregnancy outcomes and care experiences Increased confidence in women's body and ability to birth, feed and parent their child. Increased trust in subsequent pregnancies and other healthcare, early years and support services
Establishing support networks to overcome perceptions of surveillance			
Midwives recognise that women with social risk factors are more likely to feel they are under surveillance, or that disclosing information will lead to a referral to social care without their knowledge or consent. HCP's establish	Midwives communicate with women openly and co-plan support based on their individual needs. Reasons for referral [to support service] and processes are explained to women	Alleviated feelings of suspicion and mistrust/ Increased confidence in HCP Women understand the purpose of the referral to support services and see more	Overcome perceptions of surveillance. Women more likely to disclose sensitive issues and social risk factors, accept referrals, and engage with support services. Women and their families gain the

(*continued on next page*)

Table 4 (*continued*)

Context	Mechanism (resources)	Mechanism (Response)	Outcome
effective support networks for women during pregnancy through referral, signposting and encouragement to access community and multidisciplinary support services. HCP's have the time, resources and skills to coordinate and facilitate practical support to meet women's wider needs.	Models of care are placed within the local community where midwives are knowledgeable of local support services and referral pathways. The provision of information about maternity benefits, statutory procedures, assistance with contacting housing services, social care or the home office, and practical skills to support feeding and care of the newborn	value in disclosing sensitive issues. HCP's feel a sense of obligation and responsibility towards the woman rather than the system. Midwives become familiar with and known to local communities Women internalise the information as evidence of care and support. Women feel more confident to demonstrate their parenting abilities	benefits of support services such as social interaction, practical support, the opportunity to demonstrate parenting abilities and, therefore, improved child protection outcomes Midwives are better able to place the individual needs of women before institutional norms and women feel more integrated in their community. Women will be better supported once discharged from maternity care and enabled seek help confidently. Development of a support network to avoid further social isolation. Avoidance of further financial hardship and distress Improved safeguarding/ child protection outcomes

midwives] kept on telling us that my husband should have the snip… that's not the right time to be saying that…even with the [specialist model midwife] it's like, 'No more kids. I think you've had enough now.' And at hospital appointments the doctor was there making jokes…That's not nice….the [standard care midwife] that saw me, I thought that she was part of the [specialist] team and I later found out that she wasn't. Yeah she was just a hospital staff… I just don't like the deception… they didn't even tell me, I said, ''Is [HBM midwife] coming?' And they said, 'Oh no, we'll let the midwife sleep.' It would have been nice if they had told me that …instead of allowing me to think that she was part of the [specialist model]…I don't think that [HBM Midwife] would have gotten as frustrated with me. Because she knows that I don't like hands and things down there. I trust her to keep me safe and to listen to me and clearly the other two [standard care] midwives didn't listen, because I would have gotten painkillers when I asked for them…They were patient for a certain amount of time then they started snapping…and I guess not having the [HBM midwife] there, in the morning they thought that they could just … rush me out of the hospital.' (HBM7)

3.3.2. Recognising and overcoming paternalistic care through listening and co-planning

Women from both models of care described paternalistic care

Table 5
Programme theory 2: Information, choice and active participation.

Context	Mechanism (Resources)	Mechanism (Response)	Outcome
Provision of evidence-based information			
Women receive understandable, evidence-based information given at appropriate timing and relevant to their individual needs	Appropriate time with known midwives to share evidence-based information Midwives are up to date with the current evidence base and able to seek out and share reputable information Increasing continuity of care through the opportunity for women to meet other members of her care team and discuss information	Further development of a trusting relationship Women feel more reassured in the midwives knowledge and equipped with reputable information Information is not repeated unnecessarily and can be tailored to the woman's stage of pregnancy and individual needs because the HCP is more aware of those needs	Women will be better informed, able to make choices without reliance on non-evidence-based sources Women feel more in control and can exercise choice and provide informed consent. Improved self-efficacy Reduced anxiety Needs-led care and improved safety
Accessible, culturally sensitive antenatal education			
Women are signposted and encouraged to attend antenatal classes that are relevant to their individual needs Antenatal education is provided by the team of midwives providing antenatal care	Availability of a range of antenatal education that is culturally sensitive (for example same sex classes or those in different languages), flexible, and child friendly. Increased opportunity for women to meet the team providing their care	Women perceive antenatal education as relevant and accessible to them Women feel more open to ask questions and discuss concerns in a safe environment Women feel more prepared for labour and birth Development of trusting relationship between woman and the HCP's providing care	Increased antenatal education attendance for women who often struggle to access and engage in leading to educational benefits and social opportunities. Provision of relevant and useful information can enhance positive experiences of pregnancy, labour and birth. Avoidance of relinquishing control, and increased self-belief in parenting abilities that in turn can impact child protection outcomes. Reduced anxiety, less clinical intervention, increased breastfeeding initiation and satisfaction with care
Help-seeking and escalating concerns			
Women can seek help and raise concerns with a known midwife or small team of midwives in a safe and confidential manner Midwives are	Continuity of care from a known midwife or small team of midwives Midwives encourage women and provide them with the opportunity to seek help and	Development of a trusting relationship in which a woman feels safe and confident Women feel empowered, cared for, and listened to that	Timely help seeking and access to medical review resulting in improved maternal and fetal wellbeing and avoidance of adverse outcomes

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Table 5 (*continued*)

Context	Mechanism (Resources)	Mechanism (Response)	Outcome
aware that many women with low SES and social risk factors access services feeling like a burden on the system that inhibits their ability to seek help	confidentially escalate concerns if they feel uncomfortable or unsatisfied with their care	over time can overcome their perception of being a burden on the system	Reduced anxiety Identification and reporting of substandard care Women can demonstrate their ability to seek help appropriately that in turn demonstrates safe parenting for those undergoing parenting assessments.

throughout the pregnancy, birth and postnatal continuum, often evidenced in the passive language they used to describe their care. Again, paternalistic care was commonly described when women were not in the presence of a known midwife. Women felt they were not given information or the opportunity to discuss aspects of their care, particularly induction of labour, pain relief, and discharge from hospital. Three of the women described not being listened to or believed to be in labour and subsequently gave birth unattended. Others described how they felt that the system worked against them and did not respect their expertise of her own body, impacting on their physical and mental health and ability to bond with their babies. The small number of women who had experienced the type of 'woman-centred' care described in the programme theory expressed the value of feeling listed to and taken seriously by a specialist model midwife. Disrespectful care and not being listened to in labour was a common theme amongst women in the hospital-based model of care. This is thought to be due to only knowing one of the midwives in the specialist model and therefore being less likely to be looked after in labour by someone they knew.

> **Example quote (see table … for wider range of quotations):** '… any time I have mentioned [not wanting an epidural], it's more, 'No…it will be better for you just take it.'- But no, I don't want it… So I feel like I will probably have to put up a fight…and say, 'No, I don't want these things.'… I wouldn't want to be seen as someone that's making complaints. Or before the, you know, main day has even arrived, and I don't want them to kind of like think a certain way about me. I'd feel like I have to go along with it…I guess it's just easier to say, 'Yes yes,' and walk out.' (HBM8)

3.3.3. Establishing support networks to overcome perceptions of surveillance

The programme theories tested whether the resources offered by the specialist model counteract the perception of maternity care as a form of surveillance, described in the realist synthesis [1]. Overall women did not describe a feeling of surveillance or mistrust during interactions with the specialist model midwives and felt that they were referred to appropriate and helpful support services. However, many were suspicious of the interaction between maternity services and social care. Women described how the specialist midwife tried to overcome this fear by acknowledging it and providing reassurance around the process and confidentiality. The fear of social care was revealed more often by women in the hospital-based model where there was a belief that disclosure of sensitive issues to HBM midwives would lead onto social care involvement and their children being removed. Women's distrust of social care and their suspicion of links between the specialist models and social care highlights a barrier to women's ability to develop a trusting relationship, open disclosure, help-seeking and the establishment of a support network. Although women in the CBM did not explicitly discuss

Table 6
Programme theory 3: Relational continuity of care.

Context	Mechanism (Resources)	Mechanism (Response)	Outcome
Continued, supportive presence from a trusted midwife or team			
A small team of midwives provide continued supportive presence throughout pregnancy, labour and birth, and the perinatal period Women can get to know the small team of midwives and perceive the midwife/ midwives to be respectful, understanding, kind, and helpful	Women have 24/7 access to a team of approximately 6 midwives via a phone call, text message or free technology (freephone number, WhatsApp etc) Opportunities to meet other members of the care team who are aware of their history, contribute to continued supportive presence throughout pregnancy, labour and the perinatal period, and prepare women for labour and birth through education and familiarisation of birth settings	Women feel better supported by familiar midwives and build confidence to seek help and advice without financial barriers. Women develop feelings of trust and confidence in their healthcare professionals and have more meaningful interactions Women feel cared for, empowered, and see value in engaging with maternity care that extends beyond medical care Women perceive higher levels of continuity of care even when they are not cared for by their 'named' midwife	Improved safety and access and engagement with the service Timely help seeking and access to medical review resulting in improved maternal and fetal wellbeing and avoidance of adverse outcomes and unnecessary intervention Reduced feelings of anxiety contribute to hormonal regulation and optimal biopsychosocial processes Women are better able to express or restate their expressed wishes and concerns Women able to prepare for and make informed choices about labour and birth that leads to avoidance of paternalistic, impersonal care. Increased safety and satisfaction with services.
Emotional support and advocacy			
Midwives offer emotional support and advocacy to women throughout pregnancy, labour and birth, and the perinatal period in the form of, particularly those who are isolated, unsupported, or unfamiliar of the system	Women are offered personalised care through midwives listening to concerns and familiarising women with the aims of the service and model of care Provision of advocacy through known HCP attendance at medical appointments, and other interactions with multi-disciplinary services	Women feel valued and better supported holistically, rather than perceive maternity care as a medicalised service concerned only with physical health Women perceive the care providers to be the lead coordinator of care and support and refer to midwives as the first point of contact.	Appropriate referrals to multi-disciplinary services and the establishment of a supportive network Improved communication and collaboration between midwifery, obstetrics, and wider multidisciplinary services Contributes to midwives knowledge of women's social, emotional and medical history as explored in the CMO configuration below.
Knowing women's social and medical history			
Women have sufficient time with known and trusted midwives to focus on their individual needs	Women are given ample opportunities in safe environments to discuss holistic	Women's care team will be more aware of women's medical, emotional, and	Care is streamlined and individualised to meet women's holistic needs without labelling women or making

(*continued on next page*)

Table 6 (*continued*)

Context	Mechanism (Resources)	Mechanism (Response)	Outcome
rather than service structures. Continuity of relevant, up-to-date information between services on women's social, emotional, and medical circumstances	concerns, underlying social risk factors are explored and appropriate information, lifestyle advice and support offered Relevant information is shared between the small team of midwives and wider multi-disciplinary team	social situations and feel a sense of responsibility to plan care and offer support appropriately Women develop feelings of trust and confidence in their healthcare professionals and the service and feel there is value in disclosing sensitive information and social risk factors	assumptions about their needs based on a perceived cultural background Meaningful interactions between women and those providing their care (for example disclosing sensitive information or exploring the context of women's requests/concerns) Improved safety through the avoidance of missed opportunities to offer support/ intervention, or miscommunication Women do not need to repeat their often-difficult histories and experience a variation of responses/advice, fragmentation/ disassociation between services leading to reduced stress/anxiety

how the midwives were integrated into the community setting, some women in the HBM felt there was a disconnect between maternity services and support services and described lost referrals or not hearing back from support services and a lack of community-based support services.

> **Example quotations (see table … for wider range of quotations):** [discussing a referral to social care] I feel that …I'm not doing something right, or there's some sort of concern about me. That I need to be monitored and, like, maybe I'm a threat to my baby…I only want the best for my baby and to have somebody overseeing that would make me feel uncomfortable… I think it's always good that you can build up trust with the person that you're dealing with and open up and know that it won't go any further. (HBM2)

3.4. Refined programme theory

The refined programme theory in Table 4 below provides an overview of the contexts, mechanisms and outcomes relating to respectful care and needs-led support, and how they are linked. This programme theory also demonstrates what does not work in some circumstances, and how the specialist model of care cannot overcome all inequalities without improvements in the system as a whole.

3.5. Information, choice and active participation

This middle range theory incorporates programme theories relating to the provision of information, education, and women's ability to exercise choice, seek timely help and escalate their concerns when they were not satisfied with the care or advice they receive.

3.5.1. Provision of evidence-based information

Overall, women in both specialist models of care felt they were given evidence-based information during their pregnancy and described how they used this information to make informed choices. Women described wanting to exercise choice, but felt sceptical about how it would be received, particularly if they had experienced substandard or disempowering care in the past. Overall, there was an impression that when they made decisions regarding their care, or asked about alternative pathways, they were well received by the midwives in the specialist model. Again, women who had experienced standard maternity care often compared the level of information they received in each model and described information given by the specialist model midwives extending far beyond pregnancy, birth, and care of the newborn. Women also discussed not being given information and the opportunity to make informed choices during labour and birth when they were not looked after by a known midwife. Women highly valued evidence-based information and the ability to make their own choices based upon this, thus refuting the rival theory 'women with social risk factors are overwhelmed by information and choice and prefer to be advised by healthcare professionals so that they are not responsible for making choices that they do not fully comprehend'.

> **Example quote (see table … for wider range of quotations):** That [previous booking appointment under standard care] was very different to this booking appointment [under specialist model]. I felt a lot more involved, I felt active and I actually felt like I could trust [HBM Midwife]. Things seemed to have flow, she explained why she was asking what she was asking. And it, it was a bit more meaningful. When I get quite anxious she'll just explain something quite factually. Whereas the lady in [standard care booking appointment]…the way she had rushed through the paperwork, it was very much… onto the next page, onto the next page, and I just thought …just paperwork has been filled out.' (HBM8)

3.5.2. Accessible, culturally sensitive antenatal education

Most women receiving the hospital-based model did not attend antenatal classes, despite often wanting to and feeling they would benefit from the education and social opportunities they offer. The reasons they gave for not being able to attend included childcare responsibilities, feeling overwhelmed with other appointments, language barriers, and believing they would 'not fit in' or that the classes would not be relevant for them due to their social circumstances. Women in the community-based model valued 'coffee mornings' where they had the opportunity to meet the team of midwives who were on shift that day and share information throughout pregnancy. When women did attend the antenatal classes they described mixed experiences such as the usefulness of classes in other languages, and the perception that classes were aimed towards women with a supportive network and financial ability to pay for private support. Where women were not provided with adequate preparation and information, their parenting capabilities were sometimes questioned, leading to social care involvement.

> **Example quote (see table … for wider range of quotations):** 'There was an antenatal class, not specifically designed for people in my situation but just a general antenatal class, and I was going to go…And then I thought, no I'm going to be the only person on my own and I just didn't want to go through that. I think there should be more classes centred around single parents…it makes you feel more alone when everyone has got their partners…it's an opportunity for the women to maybe make friendships and support each other.[HBM midwife] helped me by giving me the hypnobirthing CD and book, which I've read. But then it's mainly me preparing myself…. general questions I would rely on Google. (HBM2)

3.5.3. Help-seeking and escalating concerns

In contrast to women's experiences of disrespectful care and a disregard for their expertise of their own bodies, women in both specialist models of care discussed largely positive experiences of

seeking help. However, many described feeling bothersome or a burden on the service that sometimes affected how quickly they sought help when they were concerned. The community-based model appeared to ease women's perception of being a burden over time and reduce the time taken to seek out and receive medical help through encouragement to contact the team. When women did feel able to discuss and escalate concerns with the specialist model midwives they knew, they described feeling listened to and taken seriously and that the advice they received often went far beyond pregnancy. They went on to reveal how they are more likely to absorb and trust information given by a trusted, known midwife. Women also described poor experiences of help-seeking outside of the specialist model, and how they felt that questioning medical advice during pregnancy could be detrimental to the care they received.

> **Example quote (see table … for wider range of quotations):** The cramp escalated and that was when I called the [CBM midwife]… But even before I called…I was a bit like, do I really need to call? You know, am I just going to hassle someone? I was like, no, it's fine… there is no question too stupid for them. So…the um-ing and ah-ing whether to call was like minutes, whereas if I was seeing a different person every time… I was always encouraged to, you know, if there was any issues get in touch or any questions, I always really felt like the door was open. (CBM9)

3.6. Refined programme theory

The refined programme theory in Table 5 below provides an overview of the contexts, mechanisms and outcomes relating to information, choice and active participation, and how they are linked.

3.7. Relational continuity of care

This middle range theory incorporates programme theories describing aspects unique to relational continuity, including the continued supportive presence of a known midwife, emotional support and advocacy, and informational continuity (through midwives knowing women's social and medical history). See Appendix C for the full list of programme theories tested and the quotations analysed to refine them.

3.7.1. Continued, supportive presence from a trusted midwife or team

Women from both models of care evaluated reflected on seeing the same midwife throughout pregnancy and the beneficial impact they felt this had on their outcomes and care experiences. The mechanisms underlying these benefits were described as the perception of investment the midwives had in their outcomes and experiences, and how they were more likely to trust advice from a midwife they knew. A trusting woman/midwife relationship was implied by women from both models of care, but they also described other responses brought about by the development of a relationship over time such as reassurance, relief, and feeling listened to. Women accessing the hospital-based model discussed how they knew their named midwife but not necessarily the rest of the team. This impacted on how they felt they could approach the rest of the team. Conversely, women in the community-based model felt that they were looked after by the whole team, reflected in how well supported they felt.

> **Example quote (see table … for wider range of quotations):** '… they are invested in you and in kind of how things go and the outcome and not just the numbers side of things, like, 'Oh baby's heart is beating,' but also like, 'How are you?'… 'How are you coping with all of it?' And I think when you feel valued that perhaps you take more in. It's like if people give you advice and it's someone you don't know you're like, 'hm, whatever'. But if it's someone you know and someone you value… I think that sticks more.' (CBM9)

3.7.2. Emotional support and advocacy

Women from both models of care described the importance and impact that emotional support provided by the specialist model of care had on their wellbeing and perception of holistic care. This support played a particularly essential role in improving pregnancy experiences for those who were socially isolated and unfamiliar with the UK system. Women described feeling 'backed up' and protected by the specialist model of care when accessing hospital-based services. Women from both models of care discussed flexibility in the timing and location of their care to meet their individual needs, and the ability to contact a known midwife at any time and how this impacted on their emotional wellbeing and engagement with services. Overall, women valued the level of emotional support provided by the specialist team but did not describe advocacy from the midwife in any detail.

> **Example quote (see table … for wider range of quotations):** 'being in foreign country … away from my mum and sisters. I don't have my family other than my partner and my babies…you want your mum next to you, you know…It's not like financially or, other issues it's more like emotional issues, you want emotional support from the midwives…I don't think I will get better care than you can anywhere else…. It's more personalised, more like family like support….it didn't feel like [HBM midwife] was there to medicalise me, she was there for more…support reason. (HBM3)

3.7.3. Knowing women's social and medical history

Women in both models of care felt that the specialist midwives knew about their medical and social history and communicated these with relevant multidisciplinary professionals. Women accessing the community-based model of care expressed a perception that the midwives in the team spoke to each other and they didn't need to repeat their history when seeing another midwife from the team. They discussed being able to disclose personal circumstances and social risk factors to the specialist midwives providing their care once they had the opportunity to build a relationship with them. Women also described midwives being able to explain complex medical conditions to them where they had received little explanation before. When women reflected on their experiences of standard care they described a lack of opportunity to discuss sensitive information and healthcare professionals being unaware of their social and medical history at appointments due to fragmented care. They felt that this led to wasted time, a lack of appropriate information, and safety concerns such as unnecessary intervention and serious mental health concerns being missed. They also revealed that having to repeat their social and medical history can be traumatic, for example a woman who attended an appointment with a standard care midwife who was unaware of her previous late fetal loss, resulting in a traumatic retelling of her history and a further lack of faith in the system.

> **Example quote (see table … for wider range of quotations):** '[In a previous pregnancy under standard care] it was a different person each time…I have got mental health issues and going through my story over and over again was quite frustrating. Whereas you know when you build a relationship with someone like with [CBM midwives] I know [CBM midwife] now knows everything so…and they all know what's going on and stuff. I think that's quite important to me because I don't really like repeating myself over and over again because then I have to re-live it.' (CBM1)

3.8. Refined programme theory

The refined programme theory in Table 6 below provides an overview of the contexts, mechanisms and outcomes relating to relational continuity of care and how they are linked.

4. Discussion

This study aimed to identify specific, underlying mechanisms of how two specialist models of maternity care improve, or exacerbate, health inequalities for women with low socioeconomic status and social risk factors. Longitudinal interviews with women were analysed against previously constructed programme theories [1,34] to better understand how women responded to different aspects of the models of care, for example the level of continuity provided or where the model of care was situated, and how that response led to a particular outcome. Overall, the findings suggest that both specialist models improved women's experiences of respectful care and enabled them to access and engage with services in a meaningful way that improved safety. However, these protective factors appear to be further enhanced for those women who experienced care from the community-based team of midwives.

Three overarching 'middle range theories' were identified and developed into CMO configurations to support those developing or evaluating specialist models of midwifery care. We will discuss the findings in relation to the key aspects of each model of care (continuity of care and place-based care) alongside the wider literature before highlighting the limitations of the study and what remains unclear.

4.1. Respectful care

Women in this study discussed substandard, impersonal and paternalistic care when they were in a hospital setting, often without a known midwife. Bradley et al. [48] suggest that this is due to institution-centred care, rather than woman-centred, where pregnant women are controlled by system norms and power structures. Despite the known health inequalities that particular groups of women face, standard maternity care is not organised around these needs, for example a woman with complex needs will have the same length appointment as a woman with no health or social concerns. The Kings fund [49] have argued that individual NHS organisations should move away from a 'fortress mentality' where their own interests are centred and move to establish local systems of care where they collaborate with other organisations and services to focus on local population need, the community-based model evaluated being an example of this.

Women receiving the community-based model of care appeared to be more protected from substandard care because they were familiar with all members of the specialist team and therefore more likely to know the person providing their care in the hospital. Although this is not always possible, so to effectively reduce inequalities the focus must sometimes shift from specialist models and towards addressing failings within the wider system. When the known stressful effects of the hospital environment [1,50] are compounded by paternalistic care, perceived stigma and discrimination, poor outcomes and experiences can be exacerbated. This has been addressed in recent policy with the NHS long term plan [51] and five year forward view [52] focusing on expanding community-based health services to improve help-seeking behaviours and health inequality.

Confirming findings of the realist synthesis, women in this study described healthcare services, including maternity, as a system of surveillance with healthcare professionals' allegiance lying with the system rather than with the woman. This was described alongside a lack of practical support that might have enabled them to demonstrate their parenting abilities. The longitudinal aspect of the interviews revealed that the development of a trusting relationship, over time, led them to feel listened to, able to disclose sensitive information, accept referrals to support services and perceive their care as a form of support rather than surveillance. These findings were echoed in a recent Danish study of continuity models for women in vulnerable positions [53] Appropriate referrals to support services and holistic support appeared to help women develop a supportive network for their child's early years, their mental wellbeing and reduce further financial hardship, distress, and isolation. This reflected previous work around 'two-way trust' between women and midwives leading to increased disclosure of sensitive issues, improved child protection outcomes, parenting abilities, and personal growth and development [34,53,54].

The mechanisms found in the context of the specialist model of care often related to continuity of care, the development of a trusting relationship between the midwife and woman, and one healthcare professional coordinating care and having overall responsibility. The key recommendations from the most recent London maternal deaths review [55] included the development of a culture of trust between the mother, her family, maternity team and other professionals. The review highlighted that 41 % of maternal death cases suggested that women were not listened to by their maternity healthcare providers, or that their concerns were not responded to in an effective way. To understand this further, Tudor Hart's 'Inverse care law' puts forward the theory that when the more the affluent demand high-quality care, as is their right, the time and resource is taken away from those who are more at risk of poor health outcomes, rather than the system adapting to need. This was reflected in the study with many women describing a fear of being seen as a 'burden on the system', leading to disengagement and a delay in help-seeking. They revealed that this fear was lessened over time through the development of a trusting relationship with the specialist model midwives provider and reassurance that their needs are being taken seriously, efficiently and communicated effectively. These responses led to increased disclosure of sensitive issues and social risk factors; women described not having to repeat difficult histories, meaningful engagement, and unnecessary or inconvenient face to face contacts were reduced. This supports Allen et al. [27] model of 'optimal caseload midwifery' in which similar mechanisms led to 'Synergistic Health Engagement' between midwives and women, leading to increased access and use of antenatal care, disclosing risk factors and accepting support.

There also appears to be improved safety mechanisms that were unrealised to women, for example a realist evaluation of the implementation of CMLC in Scotland found trusting relationships were the key mechanism that triggered midwives commitment to provide high quality care associated with improved outcomes [56]. Overall, the women interviewed in this study felt that their relationship with the specialist model midwives had a significant impact on their emotional wellbeing, experience of care, and safety. Many reported that the encouragement, reassurance and support offered by the specialist model reduced their levels of stress and anxiety. These emotional responses to the resources provided by the model, particularly continuity of care, can explain the overall positive impact seen in the wider literature [19,24,26,32,53,57–59]. Although women appeared to have benefited from both models of care evaluated, there appears to be an enhanced positive experience when care is set in the community and provided by a small team of midwives.

There is strong evidence that antenatal stress and anxiety increases the likelihood of preterm birth [60,61], therefore maternity care that aims to reduce the causes of stress is proposed as a real solution to the disparities seen in premature birth across the social gradient. In addition to the Cochrane review of midwifery led models of care [62], a systematic review and meta-analysis of models of antenatal care designed to prevent and reduce preterm birth found that women randomised to midwife-led continuity models of antenatal care were less likely to experience preterm birth [57]. To add to our understanding of these underlying mechanisms, a programme of research into interventions that aim to break intergenerational cycles of disadvantage and poor life outcomes theorised biopsychosocial interactions as the underlying mechanism to improved physical outcomes, for example complex hormonal interactions during pregnancy and birth are affected by socio-emotional factors, which are affected by relationships [63].

4.2. The implications to practice and future research recommendations

The findings of this study, the wider evaluation [1,32,34,64] and the

field of related literature support policy initiatives to up-scale models of care that aim to provide continuity of care during the antenatal, intrapartum and postnatal period. The evaluation findings contribute the specific mechanisms to improved outcomes, including the advantages of placing models of care in the community setting. Placing models within areas of significant disadvantage improves accessibility to women who might be at most risk of poor birth outcomes, including those with undisclosed social risk factors. Based on these findings, Fig. 2 provides an overview of the key components of a CMLC placed in an area of disadvantage. The inner circle represents the local community and includes a team of 6–8 midwives who provide antenatal, intrapartum and postnatal care to women in a local catchment area. This emphasis on the 'known team' rather that one 'known midwife' is important for policy as it is very difficult to deliver continuity of care with one known midwife allocated to each woman. The team act as a single point of contact for multi-disciplinary services described in the middle layer. The location can help to foster a sense of belonging to the community and encourage use of other services and facilities. The middle circle represents integrated care with other forms of local support that can be easily accessed on a needs-led basis. The outer circle represents specialist services that can be accessed through clear referral pathways. The model does not centre the woman to acknowledge the sense of surveillance women feel, but instead demonstrates the potential support available through a single point of contact. This model could be adapted for local use and should be tested and evaluated using the mechanisms identified in the CMO configurations. Guidance on the implementation of these models of care [65] and a monitoring and evaluation framework have been published to support those developing maternity services [66]. Further aspects of team working should be included in future evaluation, for example communication between team midwives and wider multi-disciplinary teams.

It might be argued that decentralising maternity services could be a costly, resource heavy endeavour and indeed it will be important to measure the cost implications of such a restructure. That said, the research into cost effectiveness of continuity models of care suggests a cost-saving effect due to shorter hospital stays, less intervention, and continuity models being more flexible and matching the input of midwives time to women's needs, especially in labour and birth [22,23,32,62,67]. In addition to this, the potential long term cost savings on the reduction of preterm birth, as was found in this evaluation project, have never been estimated but are highlighted as a consideration in future research and evaluation of these models [68].

Recent UK policy has focused on improving access to CMLC for women from ethnic minority groups and those living in deprived areas [69,70]. This policy initiative poses important research questions. The association between ethnicity, socio-economic status, and birth outcomes is poorly understood and international evidence is limited by varying definitions of outcomes, socio-economic status and ethnicity. The extent to which socio-economic deprivation contributes to the disproportionate poor outcomes experienced by Black and Asian women living in the UK remains unclear. Although the current evidence base demonstrates the role of ethnicity as a predictor of socioeconomic deprivation, Black and minority ethnic women who are not socially deprived still appear to experience worse outcomes than their white counterparts [71]. This may be due to ineffectual measures of deprivation, such as the commonly used IMD score, that overlook determinants such as wealth, class, isolation, and social capital. Understanding the impact that these measures have on birth outcomes for Black and Asian women will enable maternity providers to optimise proportionate universalism by targeting women who are most at risk of poor birth outcomes without stigmatising those who are not. The most disadvantaged or marginalised in society, who are often the main target population for such interventions, are often the hardest to access and engage with services and research [72]. This disparity was evident in how women in this study described experiences of discrimination, stigma, impersonal care. These findings did not reflect the most recent National Care Quality Commission (CQC) reports of women's experiences of maternity services, that painted a largely positive picture [73]. This could be because the CQC surveys exclude women who experienced stillbirth or neonatal death, those who were admitted, or whose baby was admitted, to

Fig. 2. The key components of a model of care for women with low socioeconomic status and social risk factors.

hospital, had a concealed pregnancy and whose baby was taken into care. This suggests the silencing of those who are likely to have important insight into the mechanisms of inequalities often seen in maternal and infant health outcomes. Although this study and the last CQC report were conducted prior to the Covid19 pandemic, more recent research reflects a fragmented care system with women unable to access support based on their needs [17,18]. Despite efforts to increase diversity in these studies, there remained a lack of representation of those at increased risk of poor outcomes. Widening participation is particularly relevant when referring to community-based interventions as the researcher will not be as familiar with the context as those with lived experience of those communities. One particularly important example of this is how women perceive continuity of care; Affluent woman who are less likely to have social risk factors have made their desire for continuity of care clear and reflected on it's impact of feeling cared for and empowered by knowing their midwife, resulting in improved engagement and experience of care [62]. Whereas women with social care involvement or a lack of trust in the system can perceive continuity of care as a form of surveillance that threatens their family, resulting in disempowerment and disengagement with the service [1]. In practice, early involvement with representatives of 'under-served' populations can be achieved by involving gatekeepers, and intermediaries (sometimes referred to as community leaders), who can act as both representative and translator of groups and introduce the researcher to those with lived experience [74].

Another issue is how to determine what is deemed as 'success' in the evaluation of models of care. Symon at al used the Quality and Newborn Care Framework [75] to evaluate women's experiences of different models of maternity care They found that women receiving continuity of care described more positive experiences, particularly around the relationships developed with healthcare providers. Although this method was not deemed appropriate for this realist evaluation as it may have directed the focus away from what was important to the specific population, there were many similarities between the findings and Symon et al.'s work. The QMNC framework could be developed into future evaluations of care for this at-risk population to provide comparable explanations of causal mechanisms for particular outcomes and give a sense of the models 'success'. On the other hand, Berg's [76] 'myth busting' paper on the implementation of information systems in healthcare settings discusses the notion of failure and success of an intervention, arguing *'The question of whether an implementation has been successful or not is socially negotiated '*. Berg states that if an intervention aims to achieve one outcome but along the way learns things or encounters challenges that convince it that another outcome is a more appropriate goal, then it will have "succeeded" if it achieves something approaching the outcome conceived along the way. This flexibility in the term 'success' in an important point for the evaluation of specialist models of maternity care. Although it may not always be explicit, CMLC aimed at women with social risk factors have often been designed to not only improve short term birth outcomes, but long-term life trajectories have been considered. Long term outcomes are rarely measured in evaluations unless there is a life-course aspect to the study, but for this population they might include engagement with early years services, GP, health visitors, A&E visits, hospital admissions, adherence to immunisation programmes, children's health and developmental milestones, and subsequent pregnancy prevalence and outcomes. Future research should focus on these outcomes and their contribution to reducing health inequalities in populations over time.

4.3. Strengths and limitations

This study demonstrates a theory driven process of unearthing specific, hidden mechanisms from a complex population, within a complex health system context. A key aspect of the study design was the longitudinal interviews over the course of women's maternity care experiences. This was based on the research methodology literature around vulnerable populations [77] to overcome the challenges of meaningful engagement with women who are known to perceive services as a form of surveillance and have limited trust or experience in the research process. As Calman et al. [78] found this method was also helpful in identifying how participants responded to transitions in their care pathways and the development of trusting relationships over time, which was seen in the thematic framework analysis of this research. That said, women may have perceived the study questions to be testing them about their willingness to engage with their care or the services offered to them. Not all women engaged with the research after consenting- one woman, who missed a significant number of antenatal appointments also missed numerous interviews. Therefore, the views of women are not representative of the experiences of *all* women recruited to the study- whilst the findings from the women who engaged with the model do reflect the majority and are consistent and credible, we cannot extrapolate from them to draw conclusions about the mechanisms operating for those who continue to struggle to engage. This reflects some of the points made in the focus groups [34], the midwives from both models of care gave specific examples of social circumstances that led to a resistance to be helped such as women living very complex lives and trying to avoid the social care system. A similar limitation is that the midwives working in the specialist models were aware of the women who were recruited to the study, and therefore may have provided an enhanced level of care for those women. The insight of a patient involvement group was sought in the analysis and write up of this study to minimise this disconnect.

Finally, the generalisability of the findings is limited by the urban location of both specialist models of care evaluated. This is particularly significant when reflecting on the outcomes relating to place-based care- what may have yielded significant outcomes in a densely populated, multicultural community in London, may yield very different results elsewhere. Research is needed to test the generalisability of the findings to rural and other community settings. Of course, the global and local context has significantly, and probably irrevocably, changed since the evaluation data was collected and analysed in 2019. The Covid-19 pandemic has led to huge disruption of people's lives, healthcare services and economies across the globe and highlighted significant health inequalities. This is not to say that the findings are not relevant in this new and ever emerging context, but that they can inform future evaluation of services, the CMO's adapted to different contexts and further tested to address these inequalities. Indeed, Pawson et al. have published working papers on the relevance of realism in the post-pandemic world, one of which describes this ability to adapt the working parts of a programme to specific contexts to gain maximum benefit; '*Public health programmes do not provide panaceas. They work under particular applications, in particular contexts, for particular groups, in particular respects, over particular durations. The great challenge is to identify these contingencies and to maximise effectiveness across every 'particular'* [79].

5. Conclusion

This study set out to identify what works, or does not work, in reducing the stark health inequalities experienced by pregnant women with low socioeconomic status and social risk factors. For most women interviewed, continuity of care was seen as a positive aspect of their care that led to the development of trusting relationships, increased engagement and a willingness to disclose social risk factors. But high levels of continuity were not always provided by the specialist models of care, and when women experienced the hospital environment without the presence of a known midwife, they described paternalistic care and discrimination. Women receiving the specialist model of care based in the community reported a higher perception of continuity of care due to being able to form a relationship with the whole team, rather than one named midwife who will not always be available. Specific mechanisms, in which contexts they are fired, and what outcomes they effect are detailed in three refined CMO configurations. These mechanisms often

involved an emotional response to a particular resource provided by the model, showing the generative causation between the resource and a particular outcome. The CMO configurations provide a framework for the development and evaluation of future models of care for women with low socioeconomic status and social risk factors.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.wombi.2022.11.006.

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