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Access and engagement with maternity, social care and mental health services for perinatal migrant women with no recourse to public funds and irregular status: A cross-sectional study using the eLIXIR born in South London, UK, maternity-child data linkage

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ABSTRACT

Objectives: In the UK, an estimated two million migrants are irregular or subject to No Recourse to Public Funds (NRPF) visa conditions, restricting welfare access and often requiring payment for NHS maternity care. The impact on maternity and perinatal service use remains poorly quantified.
Study design: Retrospective cross-sectional study.
Methods: We used linked electronic health records from maternity, neonatal, and mental health services in South London (eLIXIR-BiSL cohort). The sample included 56,690 women with 67,308 pregnancies (Oct 2018–Oct 2023). Migration status was categorised as UK-born, migrants with recourse to public funds, NRPF, or unknown visa status. Adjusted risk ratios (aRRs) were estimated using generalised linear models, controlling for sociodemographic and clinical characteristics.
Results: Compared with UK-born women, migrants, particularly those with NRPF, had lower engagement with services. Women with NRPF were less likely to access early antenatal care (aRR 0.36 [0.33–0.38]), attend maternity triage (0.89 [0.82–0.96]), or birth in midwife-led settings (0.51 [0.36–0.71]). They were more likely to access care late (3.61 [3.33–3.92]), receive inadequate antenatal care (1.41 [1.30–1.53]), transfer providers (1.54 [1.36–1.74]), and experience prolonged postnatal stays (1.38 [1.21–1.57]). Women with NRPF had lower mental health care contact before (0.05 [0.03–0.08]) and during pregnancy (0.51 [0.37–0.69]), and reduced engagement with social care (0.36 [0.17–0.70]) and the criminal justice system (0.30 [0.19–0.44]).
Conclusions: Migrants with NRPF or unknown visa status face persistent barriers to maternity and mental health care. Inclusive reforms are needed to address inequity.

1. Introduction

A growing number of people in the UK have irregular immigration status or hold visas with No Recourse to Public Funds (NRPF), a condition that restricts access to most welfare support, including housing assistance and income-related benefits such as Universal Credit, Child Benefit, and tax credits.[1] NRPF typically applies to people on temporary visas (e.g. spousal, student, or work visas) and those with unresolved or insecure immigration status. By the end of 2022, around 2.6 million people held visas with NRPF conditions, including over 1.2 million women, and an estimated 809,000 people, including 215,000 children, were living with irregular status.[1] Although their legal situations differ, both groups face similar restrictions and may be charged for NHS care.

In England, migrants with NRPF can be charged for secondary healthcare, including maternity and non-urgent mental health services, unless exempt. Primary care and emergency hospital treatment are free to all. Social care under the Care Act 2014 is not a public fund and may be accessed based on need.[1,2] Pregnancy does not offer legal protection from enforcement action, although removals during late pregnancy or the immediate postnatal period are rare.[3] A child born in the UK is not automatically a British citizen unless one parent holds settled status or citizenship, and babies born to parents with irregular status may themselves lack legal status.

These restrictions, alongside fear of enforcement, discrimination, and language or cultural barriers, are known to delay healthcare access and reduce engagement with maternity and mental health services.[2,4–6] Migrant women with NRPF or irregular status also face barriers to continuity of care, including Home Office relocations, difficulty registering with GPs, and unaffordable travel costs.[3,7] These contribute to late antenatal booking, fragmented care, and low uptake of perinatal mental health services, all associated with adverse outcomes.[8–10] European reviews highlight similar risks for irregular migrants and identify legal and administrative exclusions as key barriers to timely and appropriate care.[11,12]

Despite these risks, UK evidence on how immigration status, particularly NRPF, affects perinatal service use remains limited. Most existing research is qualitative, and routine data analyses rarely disaggregate by immigration status, often excluding women with irregular status.[6,13] This study addresses these gaps using linked health records from a large, diverse South London cohort to assess associations between migration status and use of maternity, mental health, and social care services during pregnancy and the early postnatal period.

2. Methods

2.1. Study setting, design and population

This retrospective cross-sectional study was conducted in South London, a highly diverse and socioeconomically deprived urban area with a large migrant and minoritised ethnic population. Maternity care is delivered across community, primary, secondary, and tertiary NHS services, with records integrated across hospital and mental health providers.

We used data from the Early Life Cross Linkage in Research (eLIXIR-BiSL) cohort, which links pseudonymised electronic health records from two acute NHS Trusts (Guy's and St Thomas' and King's College Hospital) and one mental health Trust (South London and Maudsley).[14] The dataset includes routinely collected, structured data on maternity, neonatal, and mental health services. We note that women who do not present to maternity or related services are not captured in these datasets. Consequently, our estimates of disparities may be conservative. The DS1 booking dataset collects detailed sociodemographic and clinical information at first contact - See supplementary file 1 (S1), though some variables may be incomplete or misclassified, particularly immigration status.

We included all women who gave birth to a singleton infant between 24 + 0 and 43 + 6 weeks' gestation from October 2018 to October 2023. Multiple births (e.g. twins, triplets) were excluded. Women recorded as having "leave to remain" only (n = 4760) were excluded, as it was unclear whether their immigration status was limited (usually NRPF) or indefinite (with entitlement to public funds). Asylum seekers were also excluded due to their distinct support arrangements and small sample size, which precluded separate reporting. The final sample included 56,690 women with 67,308 pregnancies.

2.2. Exposure

Migration status was defined using structured data on maternal

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country of birth, citizenship, and immigration-related administrative indicators recorded in the DS1 booking dataset, as described in Supplementary File 1 (S1). Women were first classified as non-migrants (born in the UK, regardless of parental migration history) or migrants (born outside the UK, irrespective of immigration status or duration of residence).

Within the migrant group, we distinguished three subgroups based on legal access to public funds and completeness of migration-related data. Migrants with recourse to public funds (RPF) were women born outside the UK who held an immigration status permitting access to public funds, including healthcare, housing, and welfare benefits (for example, refugees, women with indefinite leave to remain, or settled status). Migrants with No Recourse to Public Funds (NRPF) were women born outside the UK who were either legally restricted from accessing public funds (such as those on student, dependent, or spousal visas, those with an NRPF condition, or limited leave to remain) or who had irregular immigration status, including visa overstayers or refused asylum seekers. Women with unknown migration status were those not born in the UK or whose ethnicity was not recorded as 'White British', for whom migration-related information, such as citizenship or immigration status, was missing, incomplete, or recorded as 'other'.

Sensitivity analyses were conducted for migrants with NRPF born in low- and middle-income countries (LMICs), defined according to the World Bank[15] at the time of analysis.

2.3. Outcome measures

Maternal sociodemographic and clinical characteristics, including age, parity, ethnicity, English proficiency (including interpreter use), Index of Multiple Deprivation (IMD) quintile, country of origin income classification,[15] smoking, obesity, exposure to violence or abuse, and clinical risk at antenatal booking, were reported descriptively to contextualise the cohort and interpret disparities by migration and visa status. These variables were treated as potential confounders or effect modifiers rather than primary outcomes. Indicators of mental ill health were drawn from preexisting mental health records, family history, and responses to the Whooley questions,[16] a two-item screening tool for depression used in UK maternity care.

Maternal and infant outcomes reflected access (defined as the ability to reach and use services), and engagement (defined as sustained involvement with health and social care) during pregnancy and early postnatal periods. Outcomes were selected based on national maternity standards and prior research on barriers to care among migrant populations.[3,8,11,12,17] Our approach was informed by the candidacy framework and intersectionality theory,[18,19] which consider how structural, social, and legal factors shape access and eligibility. Before analysis, we collaborated with women with lived experience of migration during pregnancy, particularly those affected by NRPF or irregular status, and third sector organisations supporting migrant communities. They helped shape the study, prioritise outcomes, and interpret findings.

Maternity outcomes included gestational age at first antenatal booking (<10 weeks, >13 weeks, >20 weeks), adequacy of antenatal care (per parity-specific NICE guidelines[17]), transfer of care during pregnancy, number of unscheduled antenatal visits (triage attendances), place of birth (obstetric-led, midwife-led, or homebirth), length of postnatal stay, and adequacy of postnatal care (fewer than recommended contacts[20]). Infant outcomes included neonatal unit admission.

Mental health outcomes included any contact with inpatient or community services, including addiction, home treatment, forensic services, CAMHS, and NHS Talking Therapies (e.g. CBT). Social care outcomes included referrals before or during pregnancy and engagement with children's social care (e.g. child in need plans). Criminal justice involvement during or before pregnancy was also recorded. Full definitions and data sources are available in Supplementary File 1.

2.4. Statistical analysis

Baseline characteristics across migration status groups were compared using χ^2 tests for categorical variables and independent t-tests for continuous variables. Associations between migration status and binary outcomes were estimated using generalised linear models with a Poisson distribution and a log link, with robust standard errors to account for overdispersion. This approach produces adjusted risk ratios (aRRs) with 95 % confidence intervals, which are reported throughout. While the data are observational, most exposures (e.g., migration status, medical risk, smoking at booking) were recorded at or prior to pregnancy booking, and outcomes occurred later during pregnancy or postnatally. Given this temporal ordering, the use of risk ratios rather than prevalence ratios is appropriate, as it reflects the probability of the outcome conditional on prior exposure.[21] Multinomial logistic regression was used for the categorical outcome of place of birth. All models included a random intercept for woman's ID to account for repeated pregnancies.

To address confounding, models were adjusted for key socioeconomic and clinical factors selected a priori based on evidence of their association with both migration status and perinatal outcomes. These included maternal age (continuous), parity (primiparous vs multiparous), ethnicity, and area-level deprivation (Index of Multiple Deprivation quintile), in addition to smoking at booking, obesity (BMI $\geq$30 kg/m^2), and high medical risk at booking. High medical risk was defined as any pre-existing medical or obstetric condition identified at booking, such as diabetes, hypertension, cardiovascular disease, previous preterm birth, stillbirth, antepartum haemorrhage, or placental abruption.

Missing data were low for most variables (<5 %), except immigration status, which was unknown or ambiguous for a subset. Complete case analysis was used for multivariable models (>95 % of the cohort). Outcomes for migrant women with unknown immigration status were reported separately to minimise misclassification bias. A sensitivity analysis restricted the NRPF group to women born in low- and middle-income countries based on World Bank classifications[15] to reflect intersecting vulnerabilities. Analyses were conducted using R version 4.3.1.

Role of the funding source

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3. Results

Over half of the cohort (55·1 %) were migrants, defined as women born outside the UK. Migrants with recourse to public funds formed the largest subgroup (21·8 %), followed by those with unknown visa status (20·6 %) and those with NRPF (4·6 %). Maternal sociodemographic and clinical characteristics varied significantly by migration status (Table 1).

Compared with UK-born women, migrants were more likely to belong to minoritised ethnic groups. Among women with NRPF, 27·1 % were Black and 27·7 % Asian, versus 13·3 % and 6·0 % of UK-born women. Migrants with unknown visa status had the highest proportion recorded as White Other (58·9 %) and more missing ethnicity data (9·1 %). Young maternal age (<20 years) was rare, especially among migrants (0·7 %). Primiparity was most common in the NRPF group (65·0 %). Deprivation levels were highest among migrants with NRPF or unknown visa status: 57·4 % of NRPF women lived in the two most deprived IMD quintiles, compared to 49·6 % of UK-born women. Most NRPF women (81·7 %) were born in LMIC's, compared with 54·9 % of all migrants and 67·0 % of those with recourse to public funds.

Language barriers were more common among migrants. Just 44·5 % of NRPF women reported English as their main language, and 24·2 % required an interpreter, compared to 99·2 % and 0·3 % respectively

Table 1
Maternal sociodemographic and clinical characteristics for each pregnancy by migrant category.

Maternal characteristics	Non-migrants (UK born)	Migrants (non-UK born)	Migrants with recourse to public funds	Migrants with No Recourse to Public Funds	Migrants with unknown visa status
	n (%)	n (%)	n (%)	n (%)	n (%)
	30230	37078	14645	3086	*13877*
Ethnicity:					
Any other	628 (2·08 %)	3618 (9·76 %)	1335 (9·12 %)	365 (11·83 %)	1313 (9·46 %)
Black	4021 (13·30 %)	8647 (23·32 %)	4499 (30·72 %)	837 (27·12 %)	1720 (12·39 %)
Mixed/multiple	1891 (6·26 %)	1577 (4·25 %)	577 (3·94 %)	140 (4·54 %)	611 (4·40 %)
Asian	1824 (6·03 %)	5044 (13·60 %)	2572 (17·56 %)	855 (27·71 %)	805 (5·80 %)
White British	7388 (24·44 %)	1813 (4·89 %)	486 (3·32 %)	647 (20·97 %)	0 (0·00 %)
White Other	13026 (43·09 %)	15788 (42·58 %)	4630 (31·61 %)	242 (7·84 %)	8170 (58·87 %)
Missing	1452 (4·80 %)	1813 (4·89 %)	546 (3·73 %)	242 (7·84 %)	1258 (9·07 %)
<20 years	568 (1·88 %)	264 (0·71 %)	49 (0·33 %)	30 (0·97 %)	151 (1·09 %)
Primiparous	16620 (54·98 %)	19676 (53·07 %)	6865 (46·88 %)	2006 (65·00 %)	8260 (59·52 %)
Social deprivation (IMD quintile)					
1st (most deprived)	4679 (15·48 %)	7403 (19·97 %)	3036 (20·73 %)	896 (19·72 %)	2529 (18·22 %)
2nd	10321 (34·14 %)	14619 (39·43 %)	5874 (40·11 %)	1712 (37·68 %)	5482 (39·50 %)
3rd	7711 (25·51 %)	8018 (21·62 %)	3065 (20·93 %)	948 (20·87 %)	3129 (22·55 %)
4th	4355 (14·41 %)	3994 (10·77 %)	1541 (10·52 %)	452 (9·95 %)	1564 (11·27 %)
5th (least deprived)	2904 (9·61 %)	2085 (5·62 %)	877 (5·99 %)	276 (6·08 %)	764 (5·51 %)
Missing	260 (0·86 %)	959 (2·59 %)	252 (1·72 %)	259 (5·70 %)	409 (2·95 %)
Country of Origin income level:					
High	30212 (100 %)	14155 (38·18 %)	4543 (31·02 %)	519 (16·82 %)	7297 (52·58 %)
Low or middle	0 (0·00 %)	20355 (54·90 %)	9805 (66·95 %)	2522 (81·72 %)	4385 (31·60 %)
Missing	0 (0·00 %)	2568 (6·93 %)	297 (2·03 %)	45 (1·46 %)	2195 (15·82 %)
English primary language	29991 (99·21 %)	17944 (48·40 %)	9252 (63·18 %)	1373 (44·49 %)	4745 (34·19 %)
Need for interpreter	101 (0·33 %)	4348 (11·73 %)	1069 (7·30 %)	747 (24·21 %)	1726 (12·44 %)
High medical risk at booking	15774 (52·18 %)	17809 (48·03 %)	7514 (51·31 %)	1494 (48·41 %)	5978 (43·08 %)
Pre-existing mental health conditions	10417 (34·46 %)	6831 (18·42 %)	2941 (20·08 %)	370 (11·99 %)	2531 (18·24 %)
Family history of MH	4415 (14·60 %)	2518 (6·79 %)	1077 (7·35 %)	166 (5·38 %)	974 (7·02 %)
Whooley positive	2984 (9·87 %)	3405 (9·18 %)	1337 (9·13 %)	321 (10·40 %)	1173 (8·45 %)
BMI ≥/30 kg/m2	5308 (17·56 %)	6426 (17·33 %)	2867 (19·58 %)	530 (17·17 %)	1893 (13·64 %)
Smoker at booking	1651 (5·46 %)	832 (2·24 %)	225 (1·54 %)	22 (0·71 %)	471 (3·39 %)
Violence and abuse	162 (0·54 %)	201 (0·54 %)	79 (0·54 %)	15 (0·49 %)	61 (0·44 %)

among UK-born women.

Fewer migrant women smoked during pregnancy (2·2 %) than UK-born women (5·5 %), with the lowest rate among NRPF women (0·7 %). High medical risk at booking was slightly lower among migrants with unknown status (43·1 %) than UK-born women (52·1 %). Pre-existing mental health conditions were more frequently recorded among UK-born women (34·5 %) than migrants (18·4 %), and lowest among NRPF women (12·0 %). Similar patterns were seen for family history of mental illness. However, responses to the Whooley screening were comparable, with slightly higher positivity among NRPF women (10·4 %) than UK-born women (9·9 %). All differences were statistically significant ($p < 0·001$), except for recorded experiences of violence and abuse, which were comparable across groups.

3.1. *Maternity services*

Table 2 presents adjusted risk ratios (aRRs) and 95 % confidence intervals (CIs) for access to and engagement with maternity services by migration status.

Compared to non-migrants, all migrant groups were less likely to book antenatal care before 10 weeks (aRR 0·49 [95 % CI 0·48–0·51]), with the greatest reduction in women with NRPF (0·36 [0·33–0·38]).

Table 2
Adjusted risk ratio's (aRR) for access and engagement with maternity services by migrant category, adjusting for maternal age, parity, smoking, high medical risk at booking.

Maternity care	All Migrants aRR (95 %CI)	Migrants with Recourse to Public Funds aRR (95 %CI)	Migrants with No Recourse to Public Funds aRR (95 %CI)	*Unknown migrant status* aRR (95 %CI)
Booking before 10/40	0·49 (0·48, 0·51)***	0·63 (0·60, 0·66)***	0·36 (0·33, 0·38)***	0·50 (0·48, 0·52)***
Late booking > 13/40	1·61 (1·56, 1·67) ***	1·32 (1·26, 1·38)***	2·11 (1·96, 2·28) ***	1·63 (1·57, 1·70) ***
Late booking > 20/40	2·35 (2·25, 2·45) ***	1·68 (1·59, 1·77) ***	3·61 (3·33, 3·92) ***	2·36 (2·25, 2·49) ***
Transfer of care	1·68 (1·58, 1·78) ***	1·27 (1·18, 1·37) ***	1·54 (1·36, 1·74) ***	1·95 (1·82, 2·08) ***
Inadequate antenatal care	1·34 (1·29, 1·40) ***	1·12 (1·06, 1·17) ***	1·41 (1·30, 1·53) ***	1·51 (1·44, 1·58) ***
Unscheduled access to maternity care/triage	0·94 (0·89, 1.00)	1·04 (0·99, 1·08)	0·89 (0·82, 0·96) **	0·93 (0·89, 0·97) ***
Place of birth:				
Home	0·34 (0·29, 0·41) ***	0·41 (0·33, 0·50) ***	0·11 (0·05, 0·28) ***	0·47 (0·38, 0·58) ***
Midwife led	0·72 (0·64, 0·81)***	0·80 (0·70, 0·93) **	0·51 (0·36, 0·71) ***	0·80 (0·69, 0·92) **
Other	1·62 (0·35, 7·37)	1·02 (0·15, 6·60)	0·03 (0·08, 0·09) ***	1·23 (0·22, 8·27)
Admission to neonatal unit	0·92 (0·85, 1·00) *	0·91 (0·83, 1·01)	0·93 (0·77, 1·12)	0·98 (0·89, 1·08)
Prolonged length of postnatal stay	1·30 (1·22, 1·38) ***	1·29 (1·20, 1·38) ***	1·38 (1·21, 1·57) ***	1·25 (1·16, 1·34) ***
Inadequate postnatal visits	1·12 (1·04, 1·20)	1·02 (0·93, 1·12)	1·16 (0·95, 1·40)	1·12 (1·02, 1·22) *

UK-born as reference = 1.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

Late booking for maternity care (after 13 weeks) was more common among migrants, especially those with NRPF (2·11 [1·96–2·28]) and unknown visa status (1·63 [1·57–1·70]). Very late booking (after 20 weeks) was also highest among NRPF women (3·61 [3·33–3·92]).

Transfer of care between maternity providers was more likely in all migrant groups (1·68 [1·58–1·78]), with women with NRPF (1·54 [1·36–1·74]) and those with unknown visa status (1·95 [1·82–2·08]) most affected. Inadequate antenatal care was more common in NRPF women (1·41 [1·30–1·53]) and migrants with unknown visa status (1·51 [1·44–1·58]). Unscheduled antenatal care (triage) use was slightly lower among migrants overall (0·94 [0·89–1.00]), with a more significant reduction among women with NRPF (0·89 [0·82–0·96]). No difference was observed for migrants with recourse to public funds (1·04 [0·99–1·08]).

Women with NRPF were less likely to give birth at home (0·11 [0·05–0·28]) or in a midwife-led setting (0·51 [0·36–0·71]). Migrants with recourse to public funds and unknown visa status also had lower rates of home birth (0·36 and 0·47 respectively), with smaller reductions of births in midwife-led settings (0·72 and 0·80).

Prolonged postnatal hospital stay was most common among women with NRPF (1·38 [1·21–1·57]), followed by those with recourse to public funds (1·29 [1·20–1·38]) and unknown visa status (1·25 [1·16–1·34]). Inadequate postnatal care was more likely among migrants overall (1·12 [1·04–1·20]), though not significant for women with NRPF (1·16 [0·95–1·40]) or those with recourse to public funds (1·02 [0·93–1·12]). Infants born to women with NRPF showed no elevated risk of neonatal unit admission (0·93 [0·77–1·12]).

A sensitivity analysis restricted to NRPF women born in LMICs produced similar or slightly greater barriers to care, including later booking, more care transfers, reduced access to midwife-led and home birth settings, and longer postnatal stays (Supplementary File 2), indicating that the main findings were unlikely to be explained by misclassification or sociodemographic confounding.

3.2. Mental health, social care and other service access and engagement

Table 3 presents adjusted risk ratios (aRRs) and 95 % confidence intervals (CIs) comparing migrant groups to UK-born women for engagement with mental health, social care, and criminal justice services.

Before pregnancy, inpatient mental health admission risk was lower among migrants overall (aRR 0·48 [95 % CI 0·36–0·64]), with no admissions recorded for women with NRPF. Risk was also reduced for those with unknown visa status (0·63 [0·45–0·86]), but not significantly different for migrants with recourse to public funds (0·65 [0·55–1·01]). Community mental health service use, across addiction, CAMHS, home treatment, and forensic teams, was consistently lower: migrants overall (0·33 [0·31–0·37]), with reduced risk among those with recourse to public funds (0·55 [0·50–0·60]), NRPF (0·05 [0·03–0·08]), and unknown visa status (0·35 [0·31–0·39]). Engagement with NHS Talking Therapies before pregnancy was similarly reduced: migrants overall (0·33 [0·31–0·35]), recourse group (0·53 [0·50–0·67]), NRPF (0·09 [0·07–0·12]), and unknown visa status (0·38 [0·35–0·41]).

During pregnancy, inpatient psychiatric admission risk did not differ by migration status. However, community mental health service use remained lower: migrants overall (0·64 [0·57–0·72]), women with recourse to public funds, (0·71 [0·61–0·81]), NRPF (0·51 [0·37–0·69]), and unknown visa status (0·58 [0·50–0·68]). Talking Therapies access during pregnancy followed similar patterns: migrants overall (0·60 [0·55–0·65]), recourse group (0·69 [0·62–0·77]), NRPF (0·49 [0·39–0·60]), and unknown visa status (0·61 [0·55–0·68]).

Before pregnancy, social care involvement was significantly lower among migrants overall (0·61 [0·47–0·79]), especially those with NRPF (0·36 [0·17–0·70]) and unknown visa status (0·70 [0·51–0·98]); no significant difference was observed in the recourse group. Social care involvement during pregnancy did not significantly differ by migration status. Criminal justice involvement prior to pregnancy was also lower: migrants overall (0·58 [0·51–0·66]), recourse group (0·67 [0·57–0·79]), NRPF (0·30 [0·19–0·44]), and unknown visa status (0·54 [0·45–0·64]). No differences were seen during pregnancy.

Migrant women experienced lower access to and engagement with maternity, mental health, and related services compared to UK-born women. Adjusted analyses confirmed that these disparities were largely robust to differences in maternal age, parity, smoking, and high medical risk at booking. The most pronounced barriers were observed among women with NRPF or unknown visa status, particularly for early antenatal care and pre-pregnancy mental health service use. Sensitivity analyses restricted to NRPF women from LMICs supported the robustness of these findings (S2).

4. Discussion

This study provides new population-based evidence on how migration status, particularly No Recourse to Public Funds (NRPF) and unknown visa status, shapes engagement with UK maternity, mental health, and social care services during the perinatal period. Using linked electronic health records from a large, ethnically diverse urban cohort, we observed persistent and graded disparities in access. These disparities were evident in both unadjusted analyses and after adjustment for maternal age, parity, smoking, and high medical risk at booking,

Table 3
Risk ratios (RR) and adjusted risk ratio's (aRR) for access and engagement with mental health services, social care or other services by migrant category, adjusted for maternal age, parity, smoking, high medical risk at booking.

Mental healthcare referral and engagement	Migrant *aRR (95 %CI)	Migrants with Recourse to Public Funds *aRR (95 %CI)	Migrants with No Recourse to Public Funds *aRR (95 %CI)	Unknown migrant status aRR (95 %CI)
Any inpatient admission prior to pregnancy	0·48 (0·36, 0·64)***	0·65 (0·55, 1·01)	0·00 (0·00, 660·87)	0·63 (0·45, 0·86)**
Other Community MH services prior to pregnancy	0·33 (0·31, 0·37) ***	0·55 (0·50, 0·60) ***	0·05 (0·03, 0·08) ***	0·35 (0·31, 0·39) ***
Any NHS Talking Therapies treatment prior to pregnancy	0·33 (0·31, 0·35) ***	0·53 (0·50, 0·67) ***	0·09 (0·07, 0·12) ***	0·38 (0·35, 0·41) ***
Any inpatient admission during pregnancy	0·81 (0·44, 1·45)	1·07 (0·51, 2·11)	0·41 (0·02, 1·97)	0·88 (0·43, 1·71)
Other Community MH services during pregnancy	0·64 (0·57, 0·72) ***	0·71 (0·61, 0·81) ***	0·51 (0·37, 0·69) ***	0·58 (0·50, 0·68) ***
Any NHS Talking Therapies treatment during pregnancy	0·60 (0·55, 0·65) ***	0·69 (0·62, 0·77) ***	0·49 (0·39, 0·60) ***	0·61 (0·55, 0·68) ***
Any contact with social care prior to pregnancy	0·61 (0·47, 0·79) **	0·93 (0·68, 1·25)	0·36 (0·17, 0·70) **	0·70 (0·51, 0·98) *
Criminal justice involvement prior to pregnancy	0·58 (0·51, 0·66) ***	0·67 (0·57, 0·79) ***	0·30 (0·19, 0·44) ***	0·54 (0·45, 0·64) ***
Child in need plan	0·95 (0·47, 1·87)	0·82 (0·31, 1·93)	1·57 (0·25, 5·62)	0·81 (0·32, 1·84)
Social care involvement during pregnancy	0·79 (0·28, 2·19)	0·25 (0·06, 0·91) *	0·33 (0·01, 3·32)	0·70 (0·22, 2·19)
Criminal justice involvement during pregnancy	0·68 (0·24, 1·92)	0·53 (0·15, 1·83)	0·00 (0·00, 1072·90)	0·73 (0·24, 2·19)

UK-born as reference = 1.
***p < 0.001, **p < 0.01, *p < 0.05.

demonstrating that differences are not fully explained by individual-level demographic or clinical characteristics and likely reflect systemic barriers.

Women with NRPF were more likely to live in deprived areas, require interpretation services, and be born in low- or middle-income countries. Many also belonged to minoritised ethnic groups. These intersecting vulnerabilities align with the concept of intersectionality, where disadvantage stems from overlapping systems of oppression including structural racism, gendered immigration policy, and restricted access to care.[18,19] Policies such as NHS charging and exclusion from welfare benefits intensify these inequities.[2,5,10,22]

Migrants with NRPF or unknown visa status had lower odds of early antenatal booking, higher odds of inadequate contact, and more care transfers, compromising continuity of care. These associations remained robust after adjustment for sociodemographic and clinical covariates, reinforcing that systemic factors, rather than differences in age, parity, or medical risk, drive inequities. The findings echo previous research on delayed access to maternity care among migrant and ethnic minority women. Early antenatal care enables timely identification of complications, mental health needs, and safeguarding concerns.[17,23,24] We also observed reduced unscheduled antenatal care use among migrant women, especially those with unknown visa status. This may reflect unfamiliarity with UK systems, fear of charges, or lack of interpreters. Prior studies highlight how poor language support impedes access to urgent services.[10,25,26] These findings support the candidacy framework,[27] which conceptualises access as a negotiated and context-dependant process. Migrant women must perceive themselves as eligible and be recognised as such by the system, an interaction often disrupted by legal exclusions, language barriers, and mistrust.[28]

Mental health service use was extremely low among women with NRPF, despite comparable rates of positive depression screening. Engagement with NHS Talking Therapies and community services remained limited after adjustment, suggesting that observed disparities cannot be fully explained by demographic or clinical differences. This aligns with broader evidence on how stigma, mistrust, and administrative or financial exclusion deter access.[29–31] Untreated perinatal mental health problems contribute to maternal morbidity and mortality, and can cause lasting harm to children's development.[31,32]

Migrants with unknown visa status had the lowest access across domains. This group likely includes irregular migrants, including those arriving via small boat crossings or living in precarious conditions. Fears of detection, data sharing, and deportation may deter service use.[3,4,6,7,33,34] These women face heightened risks of poor maternal and mental health outcomes, compounded by trauma, housing instability, and exclusion from support systems.[1–3,7,10,29] The frequent absence of recorded visa status also points to a lack of professional confidence or systems to capture this information safely.

Importantly, even women with access to public funds had lower engagement than UK-born women. Legal eligibility alone is insufficient to address inequities. Cultural differences, lack of advocacy, systemic racism, and language barriers may all contribute. Many migrant women, particularly those not born or educated in the UK, struggle to navigate complex systems and may be unaware of entitlements.[26,30,35] Past experiences and peer networks also shape perceptions of services, influencing access and engagement.[35,36] Co-design with affected women is essential to creating responsive and inclusive care.[36]

4.1. Future research, practice, and policy recommendations

Research should explore the health consequences of reduced service use among migrant women, especially those with NRPF or irregular status. Longitudinal and mixed methods approaches are needed to understand how structural exclusion shapes long term and intergenerational outcomes. Participatory research is critical to capturing lived experiences.

Evaluating targeted interventions is urgently needed. Promising approaches include midwifery continuity of care, interpretation and advocacy support, trauma informed care, and outreach through trusted community organisations.[37] However, availability alone is not enough; women must also feel safe and empowered to engage. Continuity models that emphasise relational care and cultural safety should be tested for scale-up in populations facing social risk.[38,39]

At the immigration policy level, robust evaluation of NRPF and NHS charging policies is overdue. Legal and financial barriers and service variability should be assessed not only for health outcomes but also cost effectiveness. Recent modelling suggests removing NRPF for families could yield net public savings.[13] Our findings explicitly link observed disparities to these policies, highlighting the potential benefit of inclusive, rights-based reforms. Reforms should include suspending NRPF and maternity related charging, introducing safeguards against immigration enforcement during the perinatal period, and investing in inclusive trauma informed services, high quality interpretation, and community-based care.

Improved ethically collected migration data across health, housing, and social care systems is also needed. Safe trust-based approaches to recording immigration status must be developed. Comparative and cross sectoral studies can help identify how structural policies shape access and equity across different settings.

4.2. Strengths and limitations

This study has several important strengths. The use of linked, routinely collected electronic health records across maternity, mental health, and neonatal services provides a rare level of detail for examining service engagement by nuanced migration and NRPF status. The large, diverse urban cohort enhances the applicability of the findings to other high-migration UK settings. Crucially, women with lived experience of migration, including those with NRPF, insecure or irregular status, and third-sector advocates were directly involved in shaping the research question, refining migration categories, prioritising outcomes, and interpreting the findings. This co-production approach strengthens the validity and equity relevance of the study.

Certain limitations must also be acknowledged. Migration and NRPF status were derived from administrative records and may be misclassified due to variability in how confidently and consistently healthcare professionals ask about and document immigration details.[7,40] This may underestimate disparities among women with precarious or irregular status. Although we adjusted for key sociodemographic and clinical factors, residual confounding from unmeasured variables (asylum status, education, trauma exposure, housing precarity, informal support) may remain. The outcomes reflect service contact and recorded activity rather than care quality or women's experiences. Women who do not present to maternity or related services are not captured in these datasets. While some undocumented women may be included within the NRPF or unknown visa categories, we cannot determine the extent of underrepresentation, and observed disparities may underestimate the true burden of disadvantage among these populations. These gaps in knowledge will be explored in planned qualitative research.[41] While linked administrative data allow in-depth examination of service use, the observational design limits causal inference. Finally, although findings are likely relevant to similar diverse urban areas in the UK and other high-income settings, caution is needed when extrapolating to rural or less diverse populations.

4.3. Conclusion

Women with NRPF or unknown immigration status face persistent barriers to timely, adequate maternity and mental health care. While systemic factors clearly contribute to these disparities, patterns of engagement vary across migrant groups, and some women reporting secure immigration status also experience barriers to care. The robustness of findings after adjustment for demographic and clinical factors

highlights the influence of structural rather than individual determinants. This study adds new quantitative evidence supporting calls for inclusive, rights-based reform of immigration policies, including NRPF restrictions and NHS charging, while recognising that multifaceted interventions are needed to address broader social, cultural, and organisational factors. A universal health system must not only provide entitlement but also create conditions in which all women feel safe, respected, and empowered to access care when needed.

Ethical statement

The Early Life Cross Linkage in Research, Born in South London (eLIXIR-BiSL) Partnership has received ethical approval from the Oxfordshire Research Ethics Committee C (23/SC/0116) as an anonymised dataset for medical research.

Availability of data and materials

The data accessed by eLIXIR-BiSL remain within an NHS firewall and governance is provided by the eLIXIR Oversight Committee reporting to relevant information governance clinical leads. Subject to these conditions, data access is encouraged and those interested should contact the eLIXIR Chief Investigator (Professor Lucilla Poston; Lucilla.poston@kcl.ac.uk) or via the study web site https://www.kcl.ac.uk/research/elixir-1.

Author contributions

HRJ, SB, ZB, JR, JS, AJ and the NoRePF project expert by experience group conceived the study. HRJ and SB developed the protocol, SB extracted and analysed the data, and HRJ verified the data and wrote the first draft. All authors contributed to interpretation of results and revisions of the manuscript. All authors had final responsibility for the decision to submit for publication, and have seen and approved of the final manuscript. These two authors contributed equally to this work.

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Declaration of competing interests

We declare no competing interests.

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Appendix A. Supplementary data

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