

Experiences, utilisation and outcomes of maternity care in England among women from different socio-economic groups: findings from the 2010 National Maternity Survey

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Objective The objective of this analysis was to explore the healthcare-seeking behaviours and experiences of maternity care among women from different socio-economic groups in order to improve understanding of why socially disadvantaged women have poorer maternal health outcomes in the UK.

Design Secondary analysis of a national survey of women conducted 3 months after they had given birth.

Setting England.

Sample A total of 5332 women.

Methods Logistic regression analysis to investigate differences in outcomes among different socio-economic groups, classified by the Index of Multiple Deprivation (IMD).

Main outcome measures Healthcare-seeking behaviours, outcomes and experiences of maternity care.

Results With each increase in IMD quintile (decrease in socio-economic position), women were shown to be 25% (adjusted odds ratio [aOR] 0.75; 95% confidence interval [95%

CI] 0.63–0.90) less likely to have had any antenatal care and 15% (aOR 0.85; 95% CI 0.80–0.90) less likely to have had a routine postnatal check-up. They were 4% (aOR 1.04; 95% CI 0.99–1.10) more likely to have had an antenatal hospital admission, 7% (aOR 1.07; 95% CI 0.99–1.16) more likely to have been transferred during labour and 4% (aOR 1.04; 95% CI 0.99–1.09) more likely to have had a caesarean birth, although these results were not statistically significant. With decreasing socio-economic position women were more likely to report that they were not treated respectfully or spoken to in a way they could understand by doctors and midwives.

Conclusions This analysis suggests the need for a focusing of professionals and services towards pregnant women from lower socio-economic groups and more targeted maternal public health education towards socially disadvantaged women.

Keywords Index of multiple deprivation, maternity care, socio-economic, UK.

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Introduction

Differences in health outcomes among different socio-economic groups have been demonstrated in many areas,¹ and have provided the focus for national initiatives in the UK to reduce the observed inequalities.^{2,3} The focus in the UK has particularly been on addressing differences in infant mortality between population groups,³ of which a substantial proportion is linked to pregnancy-related complications such as preterm birth.^{4–6} Recent work^{7,8} has suggested that disadvantaged women themselves, in addition to their

infants, are at higher risk of severe pregnancy complications.

The reasons behind the higher risks of pregnancy complications associated with social disadvantage remain unclear. Studies using both UK and Australian data have considered both pre-existing medical and previous pregnancy problems, and these do not appear to explain the difference in risk.^{7–9} Both countries have universal healthcare, which is free at the point of delivery, although relative inequity in access may exist even in universal healthcare systems based on both geographical and cultural factors.

Other possible explanations for the observed inequalities centre on differences in healthcare-seeking behaviours or differences in the care provided to women based on their educational status.¹⁰

We sought to investigate further possible differences in care through secondary analysis of the 2010 National Maternity Survey, which was conducted to capture experiences of maternity care among a random sample of women giving birth in England. The aim of this analysis was to explore the healthcare-seeking behaviours, outcomes and experiences of maternity care among women from different socio-economic groups, taking into account ethnic and other differences, to improve understanding of why socially disadvantaged women continue to have poorer maternal health outcomes in the UK.

Methods

Study design and variables

The National Maternity Survey was conducted by the National Perinatal Epidemiology Unit, in conjunction with the Department of Health (England). A questionnaire was mailed out by the Office for National Statistics (ONS) in January 2010 to 10 000 women living in England. An online version was also available with individual logins. The women were randomly selected by the ONS from birth registration records and had all given birth during a specified 2-week period (October–November 2009), 3 months before the mailing of the questionnaire.¹¹ Women whose babies had died and new mothers <16 years of age were excluded.

The methodology is described in detail elsewhere.¹¹ In brief, the 28-page questionnaire consisted of 11 sections, with questions aimed at exploring different aspects of maternity care and giving women the opportunity to express their views and describe the care they received. The data collected included details of household demographics, gestation, antenatal care, labour and birth, babies born at home, postnatal care, overall perceptions of maternity care, father/partner involvement and previous pregnancies.

Ethnicity was re-classified from 16 categories into four, as per the UK 2001 Census groups.¹² The ONS provided marital status and the area-based Index of Multiple Deprivation (IMD) quintile¹³ for every respondent and non-respondent woman and this was used to classify socio-economic position. The area-based IMD was developed by the British Government in 2000 to 'pinpoint small pockets of disadvantage' in order to improve the quality of life in disadvantaged communities through targeted policies and funding.¹⁴ The IMD comprises distinct dimensions of deprivation, including income, employment, health and disability that are measured separately and then summarised as a weighted area-level aggregate score. These scores

are divided by quintile group where quintile one represents the least deprived and quintile five represents the most deprived.

Statistical analysis

Chi-square analysis was initially performed to test for associations between socio-economic position by IMD quintile and a range of characteristics. Univariable analysis using logistic regression was performed to further assess the association between IMD quintile and a range of different outcomes, and to provide a comparison for the adjusted analysis. Results are reported as odds ratios (OR) with 95% confidence intervals (95% CI). Women in each IMD quintile varied significantly by age, ethnicity and parity; we therefore used logistic regression to adjust for these factors in a multivariable analysis. There was no evidence of departure from linearity for age. Regression analysis was repeated using IMD as a continuous variable to test for evidence of a linear trend across IMD quintiles.

We conducted the analysis in four stages. First, we explored the demographic characteristics of women in each IMD quintile. Second, we analysed questions pertaining to women's healthcare-seeking behaviour across IMD quintiles. We then used questions relating to the type, appropriateness and timing of the health care that women received to investigate the care provided to women from different IMD quintiles during their pregnancy, labour, delivery and the postpartum period. Transfer of place of care during labour, including from home to hospital and from midwifery-led service to consultant-led service was also explored. Finally, we analysed questions relating to women's experiences and interactions with health professionals to ascertain differences in the quality of care and communication perceived by women from different socio-economic groups during all stages of maternity care. Variable response options were available in up to five levels and these were dichotomised for simplicity.

Ethics statement

The original survey evaluating maternity services in England was approved by the Trent Multi-Centre Research Ethics Committee (06/MRE04/16).

Results

The usable survey response was 54.1% and the total respondent population comprised 5332 women ranging in age from 16 to 51 years. The mean age was 30.6 years. The characteristics of respondents are shown in Table 1.

The predominant ethnic group was White/British comprising 4487 women (84.2%), followed by 386 women (7.2%) of Asian ethnicity, 202 (3.8%) women of Black ethnicity and 162 (3.0%) women of other ethnic origin. Of

Table 1. Demographic characteristics of respondents in each IMD quintile

Variable	1st IMD quintile <i>n</i> = 1055 <i>n</i> (%*)	2nd IMD quintile <i>n</i> = 1041 <i>n</i> (%*)	3rd IMD quintile <i>n</i> = 1131 <i>n</i> (%*)	4th IMD quintile <i>n</i> = 1013 <i>n</i> (%*)	5th IMD quintile <i>n</i> = 1091 <i>n</i> (%*)	χ^2 <i>P</i> -value
Ethnicity						
White/British	968 (93.3)	958 (93.1)	992 (88.8)	811 (81.8)	758 (71.5)	<0.001
Asian	40 (3.9)	36 (3.5)	67 (6.0)	96 (9.7)	146 (13.8)	
Black	14 (1.4)	12 (1.2)	21 (1.9)	50 (5.0)	105 (9.9)	
Other	16 (1.5)	23 (2.2)	37 (3.3)	35 (3.5)	51 (4.8)	
Country of birth						
UK	869 (86.0)	869 (86.1)	869 (79.9)	714 (75.0)	680 (66.4)	<0.001
Not UK	141 (14.0)	140 (13.9)	218 (20.1)	238 (25.0)	344 (33.6)	
Help with English						
Not required	1009 (99.0)	983 (98.5)	1068 (98.1)	918 (96.2)	953 (92.7)	<0.001
Required	10 (1.0)	15 (1.5)	21 (1.9)	36 (3.8)	75 (7.3)	
Education						
Did not leave at ≤ 16 years	863 (82.8)	830 (80.7)	873 (78.2)	720 (72.7)	728 (68.7)	<0.001
Left at ≤ 16 years	179 (17.2)	199 (19.3)	244 (21.8)	270 (27.3)	331 (31.3)	
Marital status						
Married	796 (75.5)	711 (68.3)	702 (62.1)	544 (53.7)	523 (47.9)	<0.001
Single parent	224 (21.3)	271 (26.0)	343 (30.3)	347 (34.3)	365 (33.5)	
Co-habiting	34 (3.2)	59 (5.7)	86 (7.6)	122 (12.0)	203 (18.6)	
Age						
≤ 20 years	16 (1.5)	13 (1.3)	27 (2.4)	40 (4.0)	54 (5.1)	<0.001
20–24 years	69 (6.6)	83 (8.0)	138 (12.3)	165 (16.5)	242 (22.6)	
25–29 years	194 (18.6)	229 (22.2)	283 (25.3)	282 (28.2)	324 (30.3)	
30–34 years	406 (38.9)	392 (38.0)	391 (35.0)	301 (30.1)	257 (24.0)	
≥ 35 years	360 (34.5)	315 (30.5)	279 (25.0)	211 (21.1)	193 (18.0)	
Parity						
Primiparous	479 (46.2)	497 (48.7)	581 (52.6)	528 (53.3)	525 (49.5)	0.01
Multiparous	558 (53.8)	523 (51.3)	523 (47.4)	462 (46.7)	536 (50.5)	
Pregnancy						
Unplanned	164 (16.2)	219 (21.6)	254 (23.2)	292 (30.3)	382 (36.8)	<0.001
Planned	850 (83.8)	794 (78.4)	843 (76.9)	673 (69.7)	655 (63.2)	

First IMD quintile represents the least deprived group, fifth IMD quintile the most deprived. Chi-square *P*-value represents difference in proportions between IMD quintiles.

*Percentage of those with complete data, therefore numbers do not add up to the total in each quintile. IMD quintile missing for one woman.

the total survey population, 4001 women (75.1%) were themselves born within the UK and 1081 (20.3%) were born in countries outside the UK. Most women (4932: 92.5%) reported that they did not need help with speaking English, with only 157 (2.9%) responding that they did.

The socio-economic distribution of respondents across IMD quintiles was 1055 (19.8%) in the first quintile, 1041 (19.5%) in the second quintile, 1131 (21.2%) in the mid-quintile, 1013 (19.0%) in the fourth quintile and 1091 (20.5%) in the lowest quintile. There were 4526 women who did not respond to the questionnaire. Based on summary information provided by the ONS, 10.4% of nonrespondents were from the first IMD quintile, 12.4% from the second quintile, 17.1% from the third quintile, 24.2% from the fourth quintile and 35.9% from the fifth IMD quintile.

Compared with those from higher quintiles, women from the lowest IMD quintile were more likely to be younger (≤ 24 years), unemployed, of nonwhite ethnicity, and born outside the UK, to need help speaking English, to have no formal education beyond age 16, to be single parents or co-habiting with their partner, and to report that the pregnancy was unplanned (Table 1).

After adjustment for the effects of ethnicity, age and parity, compared with women from the highest quintile (Q1), women from the lowest IMD quintile were 60% less likely to have received any antenatal care (adjusted OR [aOR] 0.40; 95% CI 0.18–0.87), 38% less likely to have been seen by a health professional before 12 weeks of gestation (aOR 0.62; 95% CI 0.45–0.85) and 47% less likely to report being able to see a health professional as early as they desired in their pregnancy (aOR 0.53; 95% CI 0.39–0.71) (Tables 2 and 3).

Table 2. Care received by women across different socio-economic groups

Outcome	IMD quintile	Number of women (%*)	Unadjusted OR (95% CI)	Adjusted** OR (95% CI)	Adjusted OR (continuous) (95% CI)
Received antenatal care	1	1044 (99.2)	1.0	1.0	0.75 (0.63–0.90)
	2	1028 (99.1)	0.99 (0.39–2.49)	1.18 (0.45–3.06)	
	3	1113 (98.9)	0.80 (0.34–1.91)	0.95 (0.40–2.27)	
	4	987 (97.9)	0.41 (0.19–0.89)	0.60 (0.27–1.35)	
	5	1041 (96.4)	0.23 (0.11–0.48)	0.40 (0.18–0.87)	
Seen by a health professional before 12 weeks	1	1010 (97.1)	1.0	1.0	0.89 (0.83–0.95)
	2	989 (96.3)	0.96 (0.69–1.33)	0.96 (0.69–1.35)	
	3	1068 (96.0)	0.86 (0.63–1.18)	0.94 (0.68–1.30)	
	4	948 (95.1)	0.66 (0.49–0.90)	0.83 (0.60–1.14)	
	5	977 (91.7)	0.43 (0.33–0.58)	0.62 (0.45–0.85)	
Antenatal hospital admission	1	175 (16.6)	1.0	1.0	1.04 (0.99–1.10)
	2	177 (17.1)	1.03 (0.82–1.30)	1.03 (0.81–1.30)	
	3	185 (16.4)	0.98 (0.79–1.23)	0.93 (0.74–1.18)	
	4	199 (19.7)	1.23 (0.98–1.54)	1.06 (0.84–1.34)	
	5	245 (22.6)	1.47 (1.18–1.82)	1.20 (0.95–1.52)	
Transferred during labour	1	64 (7.0)	1.0	1.0	1.07 (0.99–1.16)
	2	62 (6.9)	0.99 (0.69–1.42)	1.00 (0.69–1.44)	
	3	84 (8.7)	1.27 (0.91–1.78)	1.18 (0.83–1.67)	
	4	89 (9.8)	1.44 (1.03–2.01)	1.25 (0.88–1.78)	
	5	100 (10.4)	1.54 (1.11–2.14)	1.28 (0.90–1.83)	
Caesarean delivery	1	263 (25.1)	1.0	1.0	1.04 (0.99–1.09)
	2	247 (23.9)	0.92 (0.77–1.10)	0.97 (0.79–1.19)	
	3	303 (27.1)	1.01 (0.85–1.20)	1.17 (0.96–1.43)	
	4	237 (23.8)	0.92 (0.77–1.10)	1.04 (0.84–1.28)	
	5	255 (24.3)	0.88 (0.74–1.05)	1.17 (0.94–1.45)	
Unplanned caesarean delivery (of those having caesarean section)	1	122 (46.4)	1.0	1.0	1.15 (1.05–1.27)
	2	110 (44.5)	0.93 (0.66–1.32)	0.89 (0.60–1.33)	
	3	152 (50.2)	1.16 (0.84–1.62)	1.18 (0.80–1.72)	
	4	152 (64.1)	2.07 (1.44–2.96)	2.02 (1.33–3.07)	
	5	139 (54.5)	1.38 (0.98–1.96)	1.38 (0.91–2.09)	
Had postnatal check-up	1	917 (87.8)	1.0	1.0	0.85 (0.80–0.90)
	2	916 (88.7)	1.08 (0.83–1.42)	1.10 (0.84–1.44)	
	3	976 (87.1)	0.93 (0.72–1.20)	0.96 (0.74–1.24)	
	4	836 (84.0)	0.73 (0.57–0.94)	0.77 (0.59–0.99)	
	5	835 (77.8)	0.49 (0.38–0.62)	0.55 (0.42–0.70)	

*Percentage of those with complete data.

**Adjusted for ethnicity, age and parity.

Using IMD as a linear variable, with each increase in IMD quintile (corresponding to a decrease in socio-economic position), women were shown to be 25% (aOR 0.75; 95% CI 0.63–0.90) less likely to have had any antenatal care, 15% (aOR 1.15; 95% CI 1.05–1.27) more likely to have had an unplanned than a planned caesarean and 15% (aOR 0.85; 95% CI 0.80–0.90) less likely to have had a routine postnatal check-up (Table 2). They were 4% (aOR 1.04; 95% CI 0.99–1.10) more likely to have had an antenatal hospital admission, 7% (aOR 1.07; 95% CI 0.99–1.16) more likely to have been transferred during labour and 4% (aOR 1.04; 95% CI 0.99–1.09) more likely to have had a caesarean section, although these results were not statistically significant.

Additionally, with decreasing socio-economic position women were generally more likely to report that they were not treated respectfully or spoken to in a way that they could understand by doctors and midwives during their antenatal care and labour (Table 3).

Discussion

Main findings

The findings of this study show that women from lower socio-economic groups in the UK generally report a poorer experience of care during pregnancy, while having a higher odds of hospital admission, transfer during labour and

Table 3. Experiences of care among women across different socio-economic groups

Outcome	IMD quintile	Number of women (%*)	Unadjusted OR (95% CI)	Adjusted** OR (95% CI)	Adjusted OR (continuous) (95% CI)
Able to see health professional as early as desired	1	958 (91.8)	1.0	1.0	0.84 (0.79–0.90)
	2	954 (92.2)	1.06 (0.77–1.45)	1.02 (0.74–1.41)	
	3	1014 (91.4)	0.95 (0.70–1.29)	0.95 (0.70–1.31)	
	4	890 (88.9)	0.72 (0.54–0.97)	0.77 (0.56–1.04)	
	5	903 (84.3)	0.48 (0.37–0.64)	0.53 (0.39–0.71)	
During my antenatal care, midwives talked in a way that I could understand	1	1028 (98.0)	1.0	1.0	0.92 (0.81–1.04)
	2	1011 (97.7)	0.86 (0.48–1.56)	0.93 (0.51–1.70)	
	3	1090 (97.0)	0.66 (0.38–1.14)	0.77 (0.44–1.35)	
	4	973 (96.3)	0.54 (0.31–0.92)	0.75 (0.43–1.31)	
	5	1032 (95.6)	0.45 (0.27–0.76)	0.72 (0.41–1.25)	
During my antenatal care, midwives were respectful most of the time	1	1014 (96.7)	1.0	1.0	0.95 (0.85–1.05)
	2	1002 (97.2)	1.19 (0.72–1.97)	1.23 (0.74–2.05)	
	3	1069 (95.6)	0.75 (0.48–1.17)	0.84 (0.53–1.32)	
	4	949 (94.7)	0.62 (0.40–0.96)	0.75 (0.48–1.19)	
	5	1014 (95.0)	0.66 (0.43–1.02)	0.95 (0.59–1.52)	
During my antenatal care, doctors talked in a way that I could understand	1	988 (98.2)	1.0	1.0	0.93 (0.83–1.04)
	2	970 (96.2)	0.47 (0.26–0.82)	0.49 (0.28–0.86)	
	3	1042 (95.5)	0.39 (0.22–0.67)	0.47 (0.27–0.82)	
	4	923 (94.1)	0.29 (0.17–0.50)	0.41 (0.24–0.72)	
	5	1013 (95.0)	0.35 (0.20–0.60)	0.62 (0.35–1.10)	
During my antenatal care, doctors were respectful most of the time	1	974 (97.1)	1.0	1.0	0.96 (0.87–1.07)
	2	966 (96.1)	0.74 (0.45–1.20)	0.77 (0.47–1.27)	
	3	1039 (95.4)	0.62 (0.39–0.99)	0.70 (0.44–1.13)	
	4	930 (95.7)	0.66 (0.41–1.07)	0.80 (0.49–1.32)	
	5	999 (94.9)	0.55 (0.35–0.87)	0.80 (0.48–1.31)	
During labour and birth, midwives talked in a way that I could understand	1	1005 (97.1)	1.0	1.0	0.89 (0.80–0.99)
	2	995 (96.9)	0.93 (0.56–1.54)	0.99 (0.59–1.65)	
	3	1084 (97.1)	0.98 (0.59–1.62)	1.09 (0.66–1.81)	
	4	952 (95.3)	0.61 (0.38–0.96)	0.83 (0.51–1.35)	
	5	1009 (94.0)	0.47 (0.30–0.73)	0.64 (0.40–1.03)	
During labour and birth, midwives were respectful most of the time	1	985 (95.6)	1.0	1.0	0.95 (0.87–1.05)
	2	979 (95.6)	0.99 (0.65–1.52)	1.03 (0.67–1.57)	
	3	1060 (95.0)	0.87 (0.58–1.29)	0.96 (0.64–1.44)	
	4	928 (93.6)	0.67 (0.45–1.00)	0.85 (0.56–1.28)	
	5	990 (93.0)	0.60 (0.41–0.88)	0.86 (0.57–1.30)	
During labour and birth, doctors talked in a way that I could understand	1	832 (95.3)	1.0	1.0	0.88 (0.80–0.97)
	2	823 (95.8)	1.13 (0.71–1.78)	1.20 (0.75–1.90)	
	3	923 (95.3)	0.99 (0.64–1.52)	1.13 (0.73–1.75)	
	4	803 (91.2)	0.51 (0.34–0.75)	0.64 (0.43–0.95)	
	5	902 (91.5)	0.53 (0.36–0.78)	0.75 (0.50–1.13)	
During labour and birth, doctors were respectful most of the time	1	829 (95.1)	1.0	1.0	0.89 (0.81–0.98)
	2	825 (95.8)	1.19 (0.76–1.87)	1.26 (0.80–1.99)	
	3	924 (95.4)	1.07 (0.69–1.64)	1.21 (0.78–1.87)	
	4	804 (91.4)	0.55 (0.37–0.81)	0.69 (0.46–1.02)	
	5	902 (91.4)	0.55 (0.38–0.80)	0.79 (0.52–1.18)	
Given enough information to decide about pregnancy care	1	965 (92.9)	1.0	1.0	0.98 (0.94–1.02)
	2	954 (93.0)	1.09 (0.91–1.31)	1.07 (0.89–1.29)	
	3	1019 (91.5)	1.00 (0.84–1.20)	1.05 (0.87–1.25)	
	4	893 (90.4)	0.91 (0.76–1.09)	0.97 (0.81–1.17)	
	5	942 (89.2)	0.80 (0.67–0.96)	0.93 (0.77–1.13)	

*Percentage of those with complete data.

**Adjusted for ethnicity, age and parity.

unplanned caesarean delivery. Although the numbers were small in absolute terms, we found evidence of differences in care-seeking behaviour, in that the most deprived women were less likely to have received any antenatal care, to have been seen for the first consultation before 12 weeks of gestation or to have been seen by a midwife or GP for a routine 6- to 8-week postnatal review.

Strengths and limitations

This study used data from a large survey with a diverse range of participants from throughout England. Comparison with national statistics showed that the characteristics of the study cohort reflect closely the cohort of women giving birth.^{15,16} Nevertheless, despite several written reminders, the usable survey response rate was only 54.1%. This is consistent with the response rates in other similar surveys.^{10,17} There was a higher proportion of nonrespondents from IMD quintiles 4 and 5, and so there is a possibility that the responses received are not representative of the whole cohort. Women whose babies had died and mothers aged <16 years were excluded for sensitivity reasons. The number of these women who would have been included in any sample would have been small; however, there is the possibility that these women would be over-represented in the lowest socio-economic quintile and their exclusion may have impacted upon the final results. As with any questionnaire survey, the number of questions we could address was limited and so further studies would be needed to explore underlying/contributory factors.

A further potential limitation of this study relates to the socio-economic classification used to stratify participants, the IMD. Although the IMD has been shown to be a robust measure of socio-economic position in England, especially where individual-level data are not available,^{18,19} it is based on area-level information and can therefore fail to capture the characteristics of socio-economic disadvantage at the individual level.

Interpretation

These findings reflect those of a survey of women conducted throughout England in 2007 by the Healthcare Commission, which also showed that ethnic minority women, single mothers and those who ceased formal education at an earlier age access maternity services later, have poorer maternal health outcomes and report poorer experiences across a range of aspects of maternity care.¹⁰ Research conducted by Rowe et al. in 2008 using data from the 2006 National Maternity Survey,²⁰ showed that the odds of late attendance/antenatal booking were higher for black women and women living without a husband or partner, suggesting that this issue is universal across disadvantaged groups in England. Similarly, the Healthcare Commission survey reported that single women were

almost 50% less likely to access care within 12 weeks of pregnancy (OR 0.45; 95% CI 0.39–0.52) than women with a partner.¹⁰ Women with social health issues were twice as likely to report perceived discrimination in perinatal care in Australia than women without social health issues.¹⁷

The latest report from the UK Confidential Enquiry into Maternal Deaths clearly showed that social disadvantage is a risk factor for maternal death, with unemployed women almost six times more likely to die than women from any category of employment.²¹ The results of recent research in the UK suggest that the risk of severe maternal morbidity is significantly higher among socially disadvantaged women generally.⁷

Our findings are, however, in contrast with recent research conducted in Scotland by Fairley et al.,²² which showed that despite social differences in emergency caesarean section rates in the early 1980s, by 1999–2000 there was no evidence of a social gradient in unplanned emergency caesarean section rates in Scotland. The authors highlight that ‘rising emergency caesarean section rates have been shown to be related to increasing maternal age’ and that mothers in the highest socio-economic group have been shown to be older than those in lower socio-economic groups.²³ The findings in the analysis presented here, however, suggest that after adjustment for maternal age there is a lower odds of emergency caesarean delivery among women from the highest socio-economic group. The clinical implications of these findings for women should not be forgotten. A 15% increased chance of unplanned caesarean for example has a significant impact regarding peripartum morbidity and recovery, use of hospital resources and length of hospital stay, and, coupled with the decreased proportion of women accessing postnatal care, has the potential for an ongoing impact on long-term mental and physical health.

Conclusion

Although this is a highly complex issue the findings from this analysis suggest that several factors, including unplanned pregnancy, no antenatal care or late engagement with antenatal services, transfer during labour, higher caesarean section delivery rates and poor communication and care from health professionals, may collectively contribute towards poorer maternal outcomes among women from the lowest socio-economic group in the UK. Additionally, these findings add further weight to past research into neonatal outcomes by socio-economic group that has suggested that the disparities identified in neonatal health may be partly the result of differences in mother’s access to and use of antenatal healthcare services.⁴

Resolving the root cause of these disparities, that is, socio-economic disadvantage, on a national scale is clearly

unattainable in the short-term. However, having identified that poorer women have poorer maternal outcomes despite universal healthcare, the most important next step is the planning and development of strategies to address possible reasons for these differences in healthcare delivery and outcomes. In England, recent guidance from the National Institute for Health and Care Excellence²⁴ describes a model of service provision for pregnant women with complex social factors, including poverty and homelessness. This guidance highlights the need for woman-centred care, a responsibility to provide accessible services in a variety of settings and information for women in a format they understand. The key issues emerging from this analysis that need to be addressed highlight the importance of these actions and include the need for a change in culture and attitude of health professionals towards pregnant women from lower socio-economic groups, improving continuity of maternity care and service provision, better targeted maternal public health education and revision of the allocation and organisation of NHS resources, guidelines and maternity services with greater focus on socially disadvantaged women.

Disclosure of interests

All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare that they have no financial or nonfinancial interests that may be relevant to the submitted work.

Contribution to authorship

All authors contributed to the conception and design, or analysis and interpretation of data. AL drafted the article, JJK, MR and MK edited the article and all authors approved the final version to be published. MK will act as study guarantor. All authors had full access to all of the data (including statistical reports and tables) in the study and can take responsibility for the integrity of the data and the accuracy of the data analysis.

Details of ethics approval

The original survey evaluating maternity services in England was approved by the Trent Multi-Centre Research Ethics Committee (06/MRE04/16).

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Transparency declaration

MK affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Data sharing

Data sharing is governed by the National Perinatal Epidemiology Unit Data Sharing policy, available on request from Prof. M Knight. ■

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