

Social class, ethnicity and attendance for antenatal care in the United Kingdom: a systematic review

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Abstract

Background Evidence from outside the United Kingdom points to several socio-demographic factors associated with late initiation of antenatal care or fewer antenatal visits, but it is not clear how generalizable these studies are to the UK context. This systematic review addresses the question of whether there are social or ethnic inequalities in attendance for antenatal care in the United Kingdom.

Methods We identified and reviewed UK studies assessing attendance for antenatal care according to any measure of social class, social deprivation or ethnicity. A wide range of electronic databases was searched for published and unpublished studies. Further studies were identified from reference lists, citation searches and key organizations.

Results From over 1300 identified papers, 20 were potentially relevant. Nine were included in the review. Most studies were of poor quality, with only one study controlling for the effect of potential confounders such as age, parity and clinical risk factors. All but one were based on data collected around 20 years ago. Three of the five studies looking at antenatal attendance and social class found that women from manual classes were more likely to book late for antenatal care and/or make fewer antenatal visits than other women. All four studies reporting on antenatal attendance and ethnicity found that women of Asian origin were more likely to book late for antenatal care than white British women.

Conclusions There is little good quality evidence on social and ethnic inequalities in attendance for antenatal care in the United Kingdom. Recommendations for further research are suggested.

Keywords: antenatal care, social class, ethnicity

Introduction

Antenatal care is generally acknowledged as an effective method of preventing adverse outcomes in pregnant women and their babies, although many specific antenatal care practices have not been subject to rigorous evaluation.¹ The present pattern of routine antenatal care in the UK consists of a first antenatal or 'booking' visit at around 12 weeks gestation, followed by monthly visits up to 28 weeks, fortnightly visits up to 36 weeks and weekly visits thereafter. Both the pattern and the

basic content of antenatal care are largely historically determined and have not changed significantly over the years.¹ Observational studies suggest an association between gestational age at initiation of antenatal care and outcomes for mothers and babies.^{2–4} Many antenatal screening tests, including ultrasonography for the detection of fetal anomalies and biochemical screening for neural tube defects and Down's syndrome, take place during the first trimester or early in the second trimester. Women who initiate antenatal care after this time may be denied the opportunity to benefit from these screening tests.

The established pattern of antenatal care has been challenged⁵ and a number of randomized controlled trials of reduced schedules of antenatal visits have been carried out. A recent Cochrane review of these trials concluded that a reduction in the number of routine antenatal visits by one or two could be implemented without increasing adverse outcomes for mothers and babies.⁶ Women, however, particularly in developed countries, might be less satisfied with their care as a result.

The reduction in the number of antenatal visits evaluated in these trials took place in a managed way, with care provided in response to clinical need. Evidence from Europe, the USA and elsewhere points to a number of socio-demographic factors that are related to late initiation of antenatal care or having fewer antenatal visits. These include young maternal age,^{7–12} non-white ethnic group,^{11–15} low income,^{10,14,16} high parity,^{8,9} low level of education,^{10,12,14} low socio-economic status^{12,17,18} and unmarried status.¹² Other financial barriers to adequate antenatal care, such as having no health insurance, are also influential.^{7–9,11,14,18–20} Women from many of the social sub-groups associated with poor attendance for antenatal care also have an established increased risk of poor pregnancy outcomes.²¹ These studies do not imply a causal link between attendance for antenatal care and outcome of pregnancy. They are evidence,

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however, that women with socio-demographic characteristics associated with a higher risk of poor pregnancy outcome are more likely to initiate antenatal care late and experience a fragmented pattern of antenatal visits.

It is often assumed that similar factors are associated with attendance for antenatal care in the United Kingdom. A recent government paper setting out the priorities for the development of the NHS over the next three years identified improving access to antenatal care for women from disadvantaged groups as part of the plan for reducing health inequalities.²² However, it is not clear how generalizable US and European studies are to the UK context, given the differences in health care systems. We carried out a systematic review of UK studies assessing the association between women's social class or ethnicity and attendance for antenatal care.

Methods

Inclusion criteria

The review included studies assessing the association between attendance for antenatal care and women's social class or ethnicity. Studies were eligible for inclusion if they provided information on gestational age at initiation of antenatal care or the number of antenatal visits attended or missed and analysed this with respect to any individual or area-based measure of social class, social deprivation or ethnic group. Only studies carried out in the United Kingdom and published after 1979 were included.

Search methods

The electronic databases Medline, Cinahl, Embase, Sigle, Healthcare Management Information Consortium (HMIC), ASLIB Index to Theses, and the National Research Register (NRR) were searched using terms drawn from a search strategy for a review of inequalities in access to maternity care. Search terms used on Medline included the text terms inequality, low near income, barrier, poverty, socio-demographic, social near class, socio-economic near factors or status or disadvantage and the MeSH terms Health Services Accessibility, Social Class and Poverty. These were combined with the MeSH term Prenatal Care and text terms antenatal near care and prenatal near care. Further information on search strategies is available from the authors on request. Databases were searched from 1980 onwards or from the start point of the database if this was later than 1980. Searches were carried out in September 2000 and updated in March 2002. National Perinatal Epidemiology Unit databases and Maternity Alliance collections were also searched. Reference lists of all included studies were checked for further relevant studies and citation searches for included papers were carried out on the Social Science and Science Citation Indexes of BIDS. Community Health Councils (CHCs) and Maternity Services Liaison Committees (MSLCs) were contacted via CHC Listings and the MSLC newsletter to identify any relevant unpublished studies.

Data extraction and analysis

Titles and abstracts of all identified papers were checked against the inclusion criteria by one reviewer and classified as (a) definitely relevant, (b) probably relevant, (c) possibly relevant, or (d) not relevant. Where there was uncertainty about classification, the abstracts were checked independently by a second reviewer and any difference of opinion was resolved by discussion. Full copies of papers categorized as (a), (b) and (c) were obtained. These papers were read in full by one reviewer and classified as included, excluded or uncertain. Papers classified as uncertain were checked for inclusion by a second reviewer and remaining uncertainties or differences of opinion resolved by discussion between these two reviewers.

Given the likely differences between these studies, we did not consider that a statistical synthesis of their results would be appropriate. The characteristics and results of these studies were therefore summarized in structured tables by one reviewer, with statistical results reported by the authors included. Where possible, we also calculated measures of effect size in the form of risk ratio with 95 per cent confidence intervals.

Results

Results of the literature search

The searches described identified over 1300 papers. Of these, 20 appeared potentially relevant and were read in full. Eight studies, reported in nine papers, met the inclusion criteria. Of the 11 excluded papers, eight reported no data comparing antenatal attendance according to social class, or focused on attendance in low social class women only, without comparison with other social groups. Two papers reported only on attendance for antenatal education and the remaining paper reported qualitative data only.

Characteristics and quality of the studies

The characteristics and results of the eight included studies are summarized in the Table. All but one of the studies^{30,31} were based on data collected between the late 1970s and the mid-1980s. Most were simple cross-sectional studies of the association between social class and antenatal attendance using univariate analyses. The way of assessing antenatal attendance varied between studies. Several studies used late booking as a measure of attendance, with the definition of 'late' varying from 14 to 20 weeks gestation. Others counted the number of antenatal visits attended or missed. In all studies where social class was assessed, individual measures of social class based on the woman's or her partner's occupation were used. No studies used measures of area social deprivation. Three studies gave no information about social class but reported only on antenatal attendance according to ethnicity.^{25,28,30,31}

Several of these studies were limited by small numbers of women overall or in some comparison groups. Many studies were poorly reported, resulting in difficulties working out how

Table Access to antenatal care (studies in order of publication)

Study	Description	Sample	Sociodemographic measure	Measure of care	Results	Comments
Simpson and Walker 1980 ²³	Cross-sectional survey using case note review to determine when pregnant women first contact antenatal services.	All births in four health districts in the North-east Thames Health Region in two 1-week periods in February and August 1978. $n = 313$ 71 excluded cases: 8 births outside hospital, 6 births in other regions, 57 cases where notes not available.	Social class classified by husband's or partner's occupation or by woman's occupation for single women. Analysed as: I and II combined III IV and V combined Unemployed Student Not known	First contact with antenatal care services: evidenced either by blood test by GP before referral to antenatal clinic, or by attendance at hospital antenatal clinic. Categorized as early (<20 weeks gestation) or late (≥ 20 weeks gestation) attenders.	The two districts varied in social characteristics. Tower Hamlets: 42/70 (60%) Social Class IV//Unemployed; 28/70 (40%) ethnic minority. Chelmsford: 36/111 (32%) Social Class IV//Unemployed; no ethnic minority. No significant social class differences between early and late attenders within either district. In Tower Hamlets, late attenders were more likely to be immigrants and to have had three or more children ($p < 0.05$). 6/10 late attenders in Chelmsford and 3/17 in Tower Hamlets were either referred late by GP or were referred in good time but were not given hospital appointment until after 20 weeks.	Early and late attenders compared within two districts only. Tower Hamlets and Chelmsford. Very small numbers in some comparisons.
Lewis 1982 ²⁴	Retrospective study using case note review to determine factors associated with poor attendance for antenatal care and any associations with birth weight. Also case-control study in which a sample of poor attenders and a control group of satisfactory attenders were interviewed.	All primiparae resident in Wandsworth and delivered of a singleton baby in the first quarter of 1980 $n = 299$ Case-control study included 73 cases. Not clear how many controls.	Social class classified by woman's occupation. Analysed as Manual and unemployed (M) vs Non-manual and housewives (NM)	'Late booking' – attending for first antenatal appointment at ≥ 18 weeks gestation. 'Irregular attendance' – missing ≥ 2 appointments without notification. Women who met one or both of these criteria were classified as 'Poor attenders'.	94/299 (31%) were 'poor attenders'. 73 (24%) late bookers, 38 (13%) irregular attenders (17 (6%) both). Women from manual classes were more likely than women from non-manual classes to be 'poor attenders' (39/78 (50%) vs 53/205 (26%); RR = 1.62 (95% CI = 1.14–2.31))* In the case-control study, more of those who booked late had a delay between first visit to GP and referral to hospital of 6–14 weeks, compared with satisfactory attenders. (17/58 (29%) vs 4 (not clear what the denominator is), $p < 0.001$)	Very little information about case-control study; in particular, it is not clear how cases and controls were selected.
Clarke and Clayton 1983 ²⁵	Case-control study comparing antenatal care received and outcome in Asian and non-Asian women.	All cases of perinatal death in Leicestershire from 1976 to 1980. $n = 939$ Equal number of controls selected as the next live birth to a Leicestershire woman in the intended place of delivery of each perinatal death.	No formal measure of income/social class. Authors state that 'the vast majority of Asians in Leicestershire live in the older, relatively poorer, inner city areas of Leicester'.	Whether woman's GP is on the obstetric list and initiation of systematic antenatal care, defined as establishment of antenatal record (data presented for control group only). Relationship between ethnicity, GP's obstetric qualifications and perinatal death (case-control study).	Results on differences between Asian and non-Asian women in terms of care all relate to women in the control group only. Asian women were more likely than non-Asian women to have GPs not on the obstetric list (19/128 (15%) vs 22/811 (3%); RR = 5.56 (95% CI = 3.10–9.97))* A smaller proportion of Asian women had GPs with higher obstetric qualifications	Difficult to draw conclusions from differences between Asians and non-Asians within control group as control group was not representative of the population.

Table (Continued)

Study	Description	Sample	Sociodemographic measure	Measure of care	Results	Comments
Arnold 1987 ²⁶	Cross-sectional survey using case note review to determine whether antenatal care received differs according to social class.	Women giving birth in three London teaching hospitals in one month (no date given). <i>n</i> = 896	Social class classified by occupation, but not clear whether this is partner's or woman's occupation.	Number of antenatal visits attended (combined for analysis as <9 and ≥9).	(8/128 (6%) vs 317/811 (39%); RR = 0.16 (95% CI = 0.08–0.31)) * Asian women began antenatal care later. Fewer Asian women had enrolled in antenatal care by 16 weeks gestation (82/128 (64%) vs 649/811 (80%); RR = 0.8 (95% CI = 0.7–0.92)) *	
	Also included a qualitative questionnaire study of the views of obstetric and midwifery staff on non-attendance for antenatal care. Researcher also observed antenatal clinic sessions	Four women were excluded from the study because they were private patients and did not receive hospital antenatal care.	Combined for analysis as: Non-Manual (Social Classes I, II and III) Manual (Social Classes IV and V)	Number of antenatal visits missed (combined for analysis as ≥2 and <2)	Women from manual classes were more likely to attend fewer than nine antenatal visits (244/376 (65%) vs 146/520 (28%); RR = 2.31 (95% CI = 1.98–2.70)) * 16 women had no antenatal visits. Of these, 15 (94%) were from Social Class IV or V. Women from manual classes were more likely to miss at least two antenatal visits (53/376 (14%) vs 7/520 (1%); RR = 10.47 (95% CI = 4.81–22.77)) *	Not clear if this is a selected sample or based on all women giving birth in these hospitals at a given time.
Chisholm 1989 ²⁷	Cross-sectional survey (described as cohort study) examining the factors associated with late booking for antenatal care.	All women booking for delivery in a Central Manchester District maternity hospital in a six-month period in 1984. <i>n</i> = 960	Social class classified by occupation of 'head of household' (in 10% of cases this was the woman). Analysed as: I and II combined III IV and V combined Unemployed	Late booking – booking for antenatal care after 16 weeks gestation according to ultrasound or, if this not done, date of LMP	234/960 (24%) booked late. No significant association between social class and late booking, but small numbers largely because 47% were unemployed. Unemployed women or those with unemployed partners were more likely to book late (134/451 (30%) vs 96/501 (19%); RR = 1.55 (95% CI = 1.23–1.95)) *	Apparent positive association between difficulty in understanding English and late booking for all groups apart from African and Caribbean women, who had few problems with English but were more likely to book late. No analysis reported.
	Information obtained using structured questionnaire administered at booking clinic by research midwife, combined with information from case notes.	No details of any exclusions, refusal to participate, etc.			Late booking also more likely in women born outside Britain (<i>p</i> <0.01), particularly from Indian subcontinent, and in women under 20 and over 34 (<i>p</i> <0.01). Difficulty understanding English was also more likely in women from Indian subcontinent and Middle East.	

Firdous & Bhopal 1989 ²⁸	Case-control study comparing aspects of reproductive health in 'Asian' and 'non-Asian' women. Information on women's use of services and outcomes obtained from hospital case notes. Women's beliefs, knowledge, attitudes and behaviour studied through interviews with subset of women.	Women attending one antenatal clinic in a health centre Glasgow and giving birth between Jan. 1986 and June 1987. Fifty Asian women compared with 51 age-matched 'non-Asian' women giving birth in the same period. <i>n</i> = 48 Asian; 51 non-Asian 2 Asian women excluded because not able to locate notes.	Ethnicity only. Not clear how Asian women were identified as Asian or what definition was used, but most were of Pakistani or Indian origin. Ethnicity of non-Asian women not clear, but presumably predominantly White British.	Gestational age at booking. Asian women more likely to book later than non-Asian women (mean gestational age = 17 weeks vs 14 weeks (<i>p</i> = 0.005)) Asian women also less likely to have cervical smear test recorded in notes (20/48 (42%) vs 37/51 (73%), <i>p</i> = 0.005)	Interview study suggests that Asian women had poorer knowledge of reproductive health than non-Asian women.
Florey and Taylor 1994 ²⁹	Cohort study to investigate association between gestation at first antenatal visit and birth weight.	All primigravidae in one district (Dundee) whose first antenatal visit fell between 1 May 1985 and 30 April 1986 who were delivered of singleton live births. <i>n</i> = 952 (846 analysed) From total population of 952, 47 aborted, 26 left the area, 13 refused to participate, 11 had stillbirths and 9 had twins.	Social class of both woman and partner classified by occupation. Combined for analysis as: Non-Manual (I, II and IIIM) Manual (IIIM, IV and V) Unemployed Women's social class also included a Single parent category.	Gestational age at first antenatal visit (FAV). Analysed as <14 weeks vs ≥14 weeks (late). 264/835 (32%) had FAV at or after 14 weeks. Women with partners who were manual workers, unemployed or unclassifiable were more likely to have FAV late (<i>p</i> <0.001). 38/201 (19%) Non-Manual 92/339 (27%) Manual 77/193 (40%) Unemployed 57/102 (56%) Unclassifiable According to women's social class, women who were single parents, unemployed or unclassifiable were more likely to have FAV late (<i>p</i> <0.001). Women who had late FAV were younger on average (21 vs 23, <i>p</i> <0.001)	Some apparent numerical errors in tabulation of social class and FAV. No discussion of the problems of classifying women's occupations, e.g. it is not clear how housewives were classified. How were single mothers classified according to partner's social class?
Petrou <i>et al.</i> 2001 ³⁰ and Kupek <i>et al.</i> 2002 ³¹	Retrospective study, using case note review, to measure the independent effects of clinical risk factors, provider and socio-demographic characteristics on the number of antenatal visits and late initiation of antenatal care.	Women with a singleton pregnancy delivering between 1 August 1994 and 31 July 1995 in nine maternity units in Northern England and North Wales. <i>n</i> = 20771 For number of antenatal visits, analysis based on those for whom complete record of antenatal care was available (<i>n</i> = 17 978; 87%). For late initiation of care, analysis based on those for whom information on gestational age at booking was also available (<i>n</i> = 17 665; 86%).	Ethnicity (white British, Indian, Pakistani, other) Total number of antenatal visits (defined as any consultation between woman and health professional, in hospital, in community or in woman's home)	When all independent variables were controlled for, women of Pakistani origin made 9.1% fewer antenatal visits than White British women (adjusted visits ratio = 0.91 (95% CI = 0.90–0.92))* Women of Indian origin and women from other ethnic groups also made fewer antenatal visits than White British women. Women of Pakistani origin were more likely to initiate antenatal care after 18 weeks gestation than White British women (adjusted odds ratio = 4.04 (95% CI = 3.38–4.82))* * Women of Indian origin and women from other ethnic groups were also more likely to initiate antenatal care after 18 weeks than White British women.	Good quality study

* Risk ratio (RR) and 95% confidence intervals (CI) calculated by reviewer.

women were selected for the study or how they were classified according to social class or ethnicity. Details of statistical analysis were also often poorly presented and only one study considered the effect of potential confounders such as age, parity and clinical risk factors by controlling for these in the analysis.^{30,31}

Findings

Three out of the five studies that looked at the association between antenatal attendance and social class found that women from manual classes were more likely to book late for antenatal care and/or make fewer antenatal visits than other women.^{24,26,29} In the two remaining studies, although no significant social class differences were found, very small numbers of women in some groups made it difficult to assess any association.^{23,27} In one of these studies almost half the women had unemployed partners.²⁷ This meant that there were very small numbers in some social class groupings and no significant association between social class and antenatal attendance was found. Women with unemployed partners were, however, significantly more likely to book late for antenatal care than women with partners in employment.

Four studies reported on the association between antenatal attendance and ethnicity.^{25,27,28,30,31} All found that women of Asian origin were more likely to book late for antenatal care than White British women. The one study that looked at the number of antenatal visits found that women of Pakistani origin made significantly fewer antenatal visits than White British women.³⁰

Discussion

Overall, this review highlights how little good quality evidence there is on social inequalities in attendance for antenatal care in the United Kingdom. The studies reviewed provided some evidence of social inequalities in attendance for antenatal care in the United Kingdom and as such do not contradict findings from research carried out in other countries. Given the characteristics of the studies, however, this evidence could only be described as weak. All but one of the studies were based on data collected around 15–20 years ago and used statistical approaches that did not take into account the effect of possible confounding factors such as age, parity and clinical risk factors. We identified no recent good quality studies that could provide evidence on social inequalities in attendance for antenatal care, although the majority of the studies reviewed suggested that women from lower social classes were more likely to initiate care late and to have fewer antenatal visits than more affluent women.

The evidence for an association between ethnicity and late or poor attendance for antenatal care may be slightly stronger than for social class. One recent good quality study suggested that women of South Asian origin are more likely to initiate antenatal care later and have fewer antenatal visits.^{30,31} This finding was supported by three other poorer quality studies carried out

between the late 1970s and the mid-1980s.^{25,27,28} Considered alongside findings from another review carried out by us, which suggests that South Asian women are less likely to be offered and to receive prenatal screening, this is another indication that there may be notable inequity in the provision of antenatal care for these women (unpublished observations). Further studies on the barriers to equitable access to antenatal care for women from ethnic minority communities would be valuable. These should focus not only on barriers from the women's perspective, such as language and cultural issues, but also on institutional and professional barriers to equity in the provision of care.

One potential source of further evidence in this area might be unpublished local or regional studies or analyses of routinely collected data. We aimed to identify all relevant studies for the systematic review, but were unable to locate any unpublished studies. Efforts to identify these studies through searching electronic databases of 'grey literature' and publicizing our study in the Community Health Council and Maternity Services Liaison Committee newsletters were unsuccessful. It is possible, therefore, that the review is less than comprehensive in its coverage.

Further attempts to identify whether there are social inequalities in attendance for antenatal care should focus initially on analysis of routinely collected data on antenatal care, available in a number of hospital maternity care datasets. One obvious limitation of this approach, however, is that data collected for another purpose may not be best suited to answering this specific research question. If this were the case new data collection and research would be necessary to answer these questions.

In the first instance, any new data collection should focus on charting women's pathways through maternity care and assessing whether these differ by social class or ethnicity. Data collected should include not only gestational age at booking and the subsequent pattern of antenatal appointments, but also gestational age at first contact with the general practitioner (GP) for antenatal care. As one study has suggested that continuity of carer may also be associated with social class and language,³² it would also be useful to collect data on type or pattern of care and continuity of carer. Qualitative research is also needed to provide a better understanding of why some women book late for antenatal care or do not attend antenatal appointments.

One further possible related area for research relates to 'unbooked' women. Around 1 per cent of women giving birth in the United Kingdom do so without having had any antenatal care.³³ Little is known about the socio-demographic characteristics of these women, but anecdotal evidence suggests that they may come from particularly marginalized or socially excluded groups. An audit of women giving birth at King's College Hospital in London in 2000 without having had any antenatal care was recently carried out.³⁴ This showed that almost half of these women had had some contact with antenatal services, but had never formally 'booked' for care. Overall, teenagers, single, unsupported women, and unemployed women or women with unemployed partners were over-represented in this group compared

with other women giving birth at the same hospital. Further study to identify the particular problems faced by women who have very little or no antenatal care would be valuable.

Conclusions

The findings of this review do not provide strong evidence of social inequalities in attendance for antenatal care in the United Kingdom. Neither do they provide any evidence to rule out the possibility of an association between social class, ethnicity and attendance for antenatal care. There is an apparent need for further research in this area.

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