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An investigation of the relationship between the caseload model of midwifery for socially disadvantaged women and childbirth outcomes using routine data – A retrospective, observational study

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ABSTRACT

Objective: the objective of this study was to describe and compare childbirth outcomes and processes for women with complex social factors who received caseload midwifery care, and standard maternity care in the UK.

Background: women with complex social factors experience high rates of morbidity, mortality and poor birth outcomes. A caseload team was established to support these women throughout pregnancy and childbirth by providing continuity and individualised care.

Methods: data was collected from computerised birth details of 194 women with complex social factors who presented for maternity care between May 2012 and June 2013; 96 received standard care and 98 caseload care. SPSS v21 was used to calculate descriptive and inferential statistics. Logistic regression modelling found no differences in demographics, therefore unadjusted statistics are presented. Comparative analysis between women receiving caseload care and those receiving standard care was accomplished using $\chi 2$ test, relative risk (RR) and 95% confidence intervals (CI).

Results: the relationship between type of care and outcome was not changed by the inclusion of confounding factors. Women receiving caseload care were more likely to experience; spontaneous vaginal childbirth (80% versus 55% RR 1.88, 95% CI 1.27–2.77, $P = < 0.001$), use water for pain relief (32% versus 10%, RR 4.10 95% CI 1.95–8.64, $p = < 0.001$), birth in the midwife led centre (26% versus 13% RR 1.48 95% CI 1.12–1.95, $p = 0.023$), assessment by 10 weeks gestation (24% versus 8% RR 1.61 95% CI 1.24–2.10, $p = 0.008$), shorter postnatal stay (1 day versus 3 days SD 1.2 versus 2.2, $p = < 0.001$), and know their midwife (90% versus 8% RR 8.98 95% CI 4.97–16.2, $p = < 0.001$). More women in the caseload group were referred to multidisciplinary support services; psychiatry (56% versus 19% RR 2.06 95% CI 1.59–2.65, $p = < 0.001$), domestic violence advocacy (42% versus 18% RR 1.68 CI 1.31–2.15, $p = < 0.001$) and other services (56% versus 31% RR 1.58 95% CI 1.15–2.16, $p = 0.03$). They were less likely to have a caesarean section (11% versus 33% RR 0.26 95% CI 0.12–0.55, $P = < 0.001$), an epidural/spinal for pain relief (35% versus 56%, RR 0.64 95% CI 0.46–0.86, $p = 0.004$), give birth on the labour ward (70% versus 88% RR 0.63 95% CI 0.49–0.83, $p = 0.006$), and had fewer antenatal admissions (0.9(SD 1.1) versus 1.3(SD1.5), $p = 0.036$) and neonatal unit admissions (4% versus 18%, RR 0.35 95% CI 0.15–0.85, $p = 0.005$).

Conclusion: caseload midwifery care appeared to confer increased benefit and reduced harmful outcomes. Findings for individual outcomes differed from previous literature depending on outcome, suggesting caseload care may affect women in different ways depending on their individual needs.

Introduction

Socio-economic inequalities in pregnancy and birth outcomes exist across the globe, but it is western countries such as the US and UK that demonstrate a widening gap in inequality with detrimental consequences for women and children from poorer socio-economic backgrounds (Wilkinson and Pickett, 2006).

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Although the disparities associated with the two countries differ; for example in the US 'ethnicity' is thought to be the most common factor for health inequalities, and in the UK 'social class', they are similar in their impact on health for women and children (Lu and Halfon, 2003; Adler and Rehkopf, 2008; Marmot, 2010). Interventions to tackle these disparities have recently become a marked feature of the health systems in both the UK and the US, with researchers recommending the comparison and evaluation of different models of healthcare (Houweling et al., 2007).

Poor pregnancy outcomes in western countries are associated with complex social factors including ethnic minority and lower socio-economic status (Kramer et al., 2000; Boy and Salihu, 2004; King-Hele et al., 2009). The most recent review into maternal deaths in the UK found mortality rates were highest amongst women seeking asylum or refugee status, those experiencing domestic abuse, mental illness, learning difficulties and substance abuse problems (Centre for Maternal and Child Enquiries (CMACE), 2011). The review also found that infants born into these circumstances were around twice as likely to be stillborn. Further evidence shows an association between socially disadvantaged pregnant women, low-birth weight, preterm birth and stillbirth (Goldenberg et al., 2008; Blumenshine et al., 2010; Flenady et al., 2011). Research has also shown that in high-income countries, women from socially disadvantaged groups are at greatest risk of the poor outcomes associated with increased obstetric intervention such as induction of labour, epidural anaesthesia, instrumental childbirth and caesarean section (D'Souza and Garcia, 2004; Lawn et al., 2009; Oakley et al., 2009).

We know that many women in the UK with socially complex lives, who experience significantly high morbidity and mortality rates, often struggle to engage with maternity services (Commission for Healthcare Audit and Inspection, 2006; National Insitute of Clinical Excellence (NICE), 2010; CMACE, 2011). It is hypothesised that a lack of antenatal care and engagement with services is directly linked to poor maternal and neonatal outcomes; therefore policies are often focused on improving access to care (NICE, 2010).

Marmot's review of social determinants of health encourages the development of partnerships, with those affected by social inequities working with their health providers (Marmot et al., 2008). Central to this approach is empowerment through-putting in place effective mechanisms that give those affected a real say in decisions that affect their lives, and that recognise their fundamental human rights. These values are echoed in recent UK maternity service policies and guidelines, encouraging women-centred, individualised care with a focus on choice (NICE, 2010; Department of Health (DOH), 2012). National Health Service clinical guidelines in England (NICE, 2010) called for a reorganisation of services to improve antenatal care for women facing complex social circumstances and identified gaps in evidence regarding effective service provision. More recently, national policy guidance set strategic objectives to ensure that over 90% of women receive their first midwife assessment before 12 weeks of pregnancy, and promised all women a 'named midwife' to ensure one-to-one care through their pregnancy and postnatal period (DOH, 2012). This is currently a far cry from reality with a large, national survey reporting 65% of women did not have a named midwife and a large proportion describing continuity of care as inadequate (Care Quality Comission(CQC), 2013).

The caseload model of midwifery care is associated with high levels of continuity (Finlayson, 2002). For the purpose if this study 'caseload' is defined 'a named midwife as the lead professional in the planning, organisation and delivery of care given to a woman from initial booking to the postnatal period' (Royal College of Obstetrics and Gynaecology (RCOG), 2001; Sandall et al., 2013).

A growing body of evidence has found that women cared for under caseload models in the UK are less likely to experience antenatal admission, regional analgesia, and instrumental childbirth, and more likely to experience spontaneous vaginal birth, more control during childbirth, attendance at birth by a known midwife, and higher breast-feeding rates (Hodnett, 2008; Sandall et al., 2013), but the impact of caseload care for vulnerable women remains unclear. It is known, however, that positive experiences of maternity care for socially disadvantaged women are often attributed to higher levels of continuity (Walsh, 1999; Kelly et al., 2013). Studies by Bulman and McCourt (2002) and Mccourt et al. (1998) have specifically compared experiences of women receiving caseload care to standard maternity care in a socially disadvantaged area, both finding associations between continuity and advocacy, individualised care and positive outcomes. However, a recent systematic review found insufficient evidence of adequate quality to recommend routine implementation of any programme reviewed as a means of reducing infant mortality in disadvantaged populations-caseload care was not considered (Hollowell et al., 2011). The review concluded that more evidence is needed on what interventions work to reach socially excluded and vulnerable groups.

In 2008, an inner city maternity service responded to government policies and research recommendations by introducing caseload midwifery to support socially disadvantaged women throughout their pregnancy and birth by providing continuity and individualised care. This study was conducted following encouraging audit results of childbirth outcomes for the women who had received caseload care via the service in 2011. The team consists of six midwives, each the primary care provider for 35 women throughout pregnancy, birth and the postnatal period, with women able to contact a caseload midwife at anytime. Care is often carried out in the home setting and the caseload midwife provides labour care or, wherever possible, her partner midwife. The caseload midwife directly liaises with multiprofessional services and co-ordinates communication between key care providers.

The central aim of this study was to question the hypothesis that 'there is a positive relationship between caseload midwifery care and birth outcomes for vulnerable women' by identifying processes and outcomes of vulnerable women receiving the caseload model of care, compared to those receiving standard maternity care.

Methods

The unit of analysis in the study was pregnant, vulnerable women, with the independent variable being the type of maternity care received. Dependant variables included clinical care processes and outcomes listed in Fig. 1.

Ethical approval was sought from the Trust's research and development department prior to collecting data. Routinely collected computerised data were collected from a clinical database validated for commonly recorded pregnancy outcome variables (Cleary et al., 1994). This method of retrospective audit has been used extensively in healthcare research to identify trends in outcomes and areas for further improvement, although it does not ascertain causality (Bowling, 2009).

Sample and data collection

A power calculation was based on the findings of the caseload practice audit in 2011, which found a 33% increase in normal birth, from 22% to 55%. One hundred and eighty participants were considered necessary to demonstrate the statistical significance of a 33% increase. See Fig. 2 for flowchart of data collection. Data were collected from 216 women who had booked for maternity care between May 2012 and June 2013 and identified as 'socially