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Review Article

Is model of care associated with infant birth outcomes among vulnerable women? A scoping review of midwifery-led versus physician-led care



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ABSTRACT

This scoping review investigates if, over the last 25 years in high resource countries, midwives' patients of low socioeconomic position (SEP) were at more or less risk of adverse infant birth outcomes compared to physicians' patients. Reviewers identified 917 records in a search of 12 databases, grey literature, and citation lists. Thirty-one full documents were assessed and nine studies met inclusion criteria. Eight studies were assessed as moderate in quality; one study was given a weak rating. Of the moderate quality studies, the majority found no statistical difference in outcomes according to model of care for preterm birth, low or very low birth weight, or NICU admission. No study reported a statistically significant difference for small for gestational age birth (2 studies), or mean or low Apgar score (4 studies). However, one study found a reduced risk of preterm birth (AOR=0.70, $p < 0.01$), and heavier mean infant birth weight (3325 g vs. 3282 g, $p < 0.01$) for midwifery patients. Another study reported lower risk of low (RR=0.59, 95% CI: 0.46, 0.73) and very low birthweight (RR=0.44, 95% CI: 0.23, 0.85) for midwifery care. And, a third study reported a decrease in stays (1–3 days) in NICU (Adjusted Risk Difference= -1.8, 95% CI: -3.9, 0.2) for midwifery patients, though no overall difference in NICU admission of any duration. Other studies reported significant differences favoring midwifery care for mean birth weight (3598 g vs. 3407.3 g, $p < 0.05$; 3233 g vs. 3089 g, $p < 0.05$; 2 studies) and very low birth weight (OR=0.35, 95% CI: 0.1, 0.9), for sub-groups within the larger study populations. This scoping review documented heterogeneity in study designs and analytical methods, inconsistent findings, moderate methodological quality, and lack of currency. There is a need for new studies to definitively establish if and how a midwifery-led model of care influences birth outcomes for women of low SEP.

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Introduction

In high resource countries there are significant disparities in prevalence of adverse birth outcomes, such as preterm birth (PTB), among infants born to women of low vs. high socioeconomic position (SEP) (Blumenshine, Egerter, Barclay, Cubbin, & Braveman, 2010). SEP demarcates social class based on material and social resources (i.e. wealth and educational credentials) and prestige (i.e. occupation, or other measures of social rank) (Krieger, 2001, p. 1). When socioeconomic barriers consistently lead to adverse health outcomes for a historically marginalized population—such as women of low SEP—health disparity mirrors social injustice (Braveman & Gruskin, 2003). Therefore, there is an ethical imperative based on the principles of fairness and the universal human right to “the highest attainable standard of health” (Constitution of the World Health Organization, 1946), to rectify health disparities (Braveman & Gruskin, 2003).

Women of low SEP are more commonly exposed to the known causal determinants of PTB and intrauterine growth restriction (IUGR) compared to women of higher SEP, including: smoking, substance use, low gestational weight gain, short stature, prolonged standing and strenuous work activity, inadequate prenatal care, bacterial vaginosis, and psychological factors such as depression, physical abuse and low social support (Kramer, Séguin, Lydon, & Goulet, 2000). At birth, PTB or IUGR infants are at greater risk of neonatal death, respiratory distress, failure to regulate temperature, and hospital readmission (Bernstein, Horbar, Badger, Ohlsson, & Golan, 2000; Martens, Derksen, & Gupta, 2004; Wang, Dorer, Fleming, & Catlin, 2004). Long-term, these infants have higher rates of delayed cognitive, emotional, and developmental growth compared to those born at full-term (Alexander, 2007), and as adults may have increased odds of cardiovascular disease, hypertension, and diabetes (Barker, 1995; Ross & Beall, 2008).

Because a number of the causal determinants of adverse infant outcomes associated with low SEP are potentially avoidable, strategies that promise even modest improvements warrant serious consideration. In a Cochrane Review (2015) examining randomized trials that compared midwifery-led continuity of care models to other care models for childbearing women, researchers found that midwifery care reduced the likelihood of preterm birth by 24% (Relative Risk 0.76, 95% CI: 0.64, 0.91) and fetal loss before 24 weeks gestation by 19% (RR 0.81, 95% CI: 0.67, 0.98) (Sandall, Soltani, Gates, Shennan, & Devane, 2015). If these findings are equally applicable for women of low SEP, whose infants are at the greatest risk of adverse outcomes, midwifery-led care may be an ideal model for vulnerable women.

Typically, physician-led care equates with the biomedical model of care. In this model the aim of prenatal care is to reduce risk of maternal fetal/infant morbidity and mortality through screening, diagnosis and treatment of complications as they arise (van Teijlingen, 2005). The biomedical model assumes a standardized approach to pregnancy and childbirth, with deviations from the norm often countered through medical intervention (Gregg, 1995). Though patient-centered care is encouraged within the biomedical model, the model is shaped by pathology and the underlying medical paradigm (Barry & Edgman-Levitan, 2012).

In contrast, midwifery practice specifically focuses on the mother's social, psychological, and cultural well-being, as well as the normal biological processes of pregnancy, birth and transition to parenthood (ten Hoop-Bender et al., 2014). A core element of the model, as defined in *The Lancet Midwifery Series*, includes capacity building to strengthen women's ability “to care for themselves and their families” (ten Hoop-Bender et al., 2014, p. 1227). Empowering patients as partners in health care requires mutual trust, and regard for the “woman's need for time, information, encouragement, validation and a supportive presence” (Kennedy, 2000, p. 10). Because of long appointment times and the model's relational emphasis, midwives are well positioned to understand and respond to contextual factors influencing patients' behavior (Davis, 2010), such as personal autonomy, material and social resources, and individual abilities (Downe, Finlayson, Walsh, & Lavender, 2009). For low income women, practitioner–patient trust has been linked with clinician continuity, another hallmark of midwifery care (Phillippi & Avery, 2014), and has been associated with adherence to clinical advice (Sheppard, Zambrana, & O'Malley, 2004). In addition, personalized continuity of care, in which a woman feels that her prenatal caregiver knows and remembers her and her health history from one visit to the next, has been shown to result in a three-fold increase in “very good” patient care ratings (Davey, Brown, & Bruinsma, 2005), which is especially important for women of low SEP who have reported lower levels of satisfaction in care compared to women of higher SEP (Haviland, Morales, Dial, & Pincus, 2005). All of these elements of care: time, trusting relationship, and individualized care, along with emotional support, and the demedicalization of pregnancy, have been identified as key attributes of quality prenatal care by women and care providers of all types (Sword et al., 2012). In addition, it is important to note that despite their names, either model, the biomedical model or midwifery model, can and has been adopted and delivered by various types of maternity providers. The attributes of midwifery care described here are not exclusive to the midwifery profession; it is a clinician's philosophy of care that determines his or her model of practice.

To date there has been no review of the literature examining birth outcomes of midwifery-led care compared to physician-led care for women of low SEP. The purpose of this scoping review is to identify all available information on this topic from the last 25 years, in order to present a summary of the “extent, range and nature” of the research, determine key gaps in the literature, and provide guidance for future studies (Arksey & O'Malley, 2005, p. 6). This review will investigate if, in countries belonging to the Organization of Economic Co-operation and Development (OECD) (Organization of Economic Co-operation and Development (OECD), 2014), midwives' patients of low socioeconomic position were at greater or lesser risk of adverse infant birth outcomes compared to physicians' patients.

Methods

Selection of inclusion criteria

A review team, with combined expertise from obstetrics, epidemiology, midwifery, sociology, and public health conducted this

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