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## The long-term effects of birthing interventions on childhood empathy



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## ABSTRACT

**Objectives:** birthing practices have changed drastically over the past century. It is now more common for women to birth in a hospital, receive drug interventions, and to birth via caesarean section, yet there is a paucity of research on long-term outcomes associated with practices. The research was designed to determine if there were any long-term effects of the birthing experience on child empathic behaviour.

**Methods:** two-hundred-and-sixty-four mother–child dyad ( $M_{\text{child\_age}}=5.92$  years;  $SD=.85$  years; 127 boys) completed either a questionnaire on birthing practices (mothers) or a modified Stickers Task to assess empathic behaviour (child).

**Results:** there was a non-significant effect ( $\Delta=.22$ ,  $p=.395$ ) of home versus hospital birth and a small-moderate, significant ( $\Delta=.33$ ,  $p=.017$ ) effect of the use of epidurals during, with children of mothers who did not use an epidural or who birthed at home showing greater empathic behaviour.

**Conclusions:** the birthing location and the decision to have an epidural can have long-term consequences on children's empathy. While researchers need to further examine the mechanisms behind these findings, parents should be made aware of the potential long-term effects in order to allow them to make fully informed decisions.

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## Introduction

The past century has seen a drastic change in how women birth. Although historically (and still in many cultures around the world) women birthed with other women or occasionally alone, unmedicated, and close to or at home, the advent of modern medicine and obstetrics specifically has changed this landscape, particularly in Western nations. In North America, it is now far more common for women to birth in hospitals, attended to by doctors and nurses (instead of midwives), medicated, and often-times delivering surgically instead of vaginally (e.g., Martin et al., 2011). Although there is little doubt that the advent of modern medicine has saved countless lives for high-risk and complicated births, questions have arisen as to how these changes to birth affect both women and children. If a natural birth with a midwife or alone is what is physiologically expected for mother and child, how does our current system affect this?

There has been a surge in research examining the immediate effects of medical interventions on birth, with many showing some deleterious effects for mother and child. For example, research has found the use of drugs in labour, whether to quell pain or enhance labour, is associated with problems breast-feeding (Waldenstrom, 1999; Dewey et al., 2003) (although hospitals actively committed to breast feeding do not show these negative

effects; see Halpern et al., 1999). Epidurals are associated with a greater risk for intrapartum temperature which is in turn associated with negative infant outcomes including hypotonia, problems breathing, low Apgar scores, and early-onset seizures (Greenwell et al., 2012) as well as an increased risk for an instrumental vaginal birth (Anim-Somuah et al., 2005). Caesarian sections have been linked to medical problems (including maternal mortality, placenta previa, uterine rupture, and fetal death) (Belizan et al., 2007), breast-feeding problems (Dewey et al., 2003), and various psycho-social outcomes (including less satisfaction with the birth experience, longer time to interact with their infant, less positive reactions to their infant after birth, and fewer interactions at home) (DiMatteo et al., 1996). Notably, these negative outcomes (medical and psycho-social) are absent in home births when the birth is low-risk (Wiegars et al., 1996; Janssen et al., 2002, 2009; Birthplace in England Collaborative Group, 2011).

Although the immediate effects of birthing practices are becoming well-known, there is little research into the long-term effects. The little that is known suggests that long-term repercussions are not only possible, but probable, though the research to date has focused on the subjective birthing experience. Negative birth experiences have been found to lower the likelihood that a woman will have a subsequent birth over the next eight to 10 years (Gottvall and Waldenstrom, 2002). For preterm children, a negative birth experience predicts negative mother–child interactions and child emotional and behavioural problems when the

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child is 5–6 years of age (Latva et al., 2008). The objective of the current study is to add to the literature by examining the long-term effect of three aspects of the birth experience—location, caesarean section, and drug intervention—on child empathic behaviour.

The decision to focus on these three objective aspects of the birth experience was based on the literature for immediate outcomes. As previously mentioned, all three of these aspects of the birth experience have been linked with a heightened risk for postpartum problems including breast-feeding difficulties, less positive reactions to the infant post-birth, and other psychosocial outcomes (e.g., Dewey et al., 2003; DiMatteo et al., 1996). Herein, child empathic behaviour is conceptualised as helping behaviour stemming from feelings of empathy for another individual. This would be in contrast to prosocial behaviour, in which the act is not based upon the negative situation of the other, or helping behaviour which is done to achieve a means to an end (e.g., reputation building). The decision to study child empathic behaviour stems from its relationship to known maternal behaviours that are also associated with the birthing experience.

Childhood empathy has been linked to responsiveness in parenting such that children with parents who are responsive to their distress are more likely to empathise with others as they develop (Davidov and Grusec, 2006; Grusec and Davidov, 2010), and elements of the birthing experience can affect a woman's ability to parent responsively. At the subjective level, negative birth experiences, including drug interventions and caesarean sections (particularly emergency ones) for some women, and separation from one's baby (which is common during caesarean sections and still in some hospitals regardless) are major predictors of postpartum depression (Reynolds, 1997; Righetti-Veltema et al., 1998; Creedy et al., 2000; Waldenstrom et al., 2004). Postpartum depression has been linked to attachment problems (Murray et al., 1996; Nagata et al., 2000; Moehler et al., 2006; Feldman, 2007), child behavioural problems (Petterson and Albers, 2001; Grace et al., 2003), and child emotional problems (Hay, 1997; Murray and Cooper, 1997). At the objective level, caesarean sections, for example, limit a mother's mobility and thus ability to be responsive to her child in the first few weeks of the dyad's existence whereas hospital procedures that limit mother–infant interactions can affect a mother's ability to learn to be responsive to her child. There are also immediate negative outcomes associated with the practices of interest themselves (e.g., breast feeding) that have been found to affect factors related to child emotional well-being and attachment (Else-Quest et al., 2003; Britton et al., 2006) which are related to later empathic behaviour (Grusec, 2011), irrespective of the maternal experience.

Given the paucity of research on long-term effects from birthing experiences, the research was designed to be exploratory in nature. Although the research suggests long term effects to do with negative birth experiences, the current research was interested in the practices themselves, not the maternal perception of the practices, and thus there is no foundation to base a hypothesis. Women may experience these practices differently, but the practices themselves influence the birth process and the physiological nature of the birth experience. Although a woman may be mentally quite comfortable having a caesarian section, for example, her body may still respond in an unfavourable manner due to the hormonal and physiological effects of surgery. Therefore, it stands to reason that there may be longer term effects. However, although immediate outcomes suggest deleterious effects associated with birth interventions (DiMatteo et al., 1996; Halpern et al., 1999; Waldenstrom, 1999; Dewey et al., 2003; Anim-Somuah et al., 2005; Belizan et al., 2007; Greenwell et al., 2012), parenting is an ongoing process which is constantly evolving, and in the absence of ongoing clinical problems (e.g., depression), it is equally

likely that the birthing experience effects are mitigated with time. To this end, the current study recruited mother–child dyads for a larger study examining factors affecting empathy in childhood. Of interest herein, mothers were asked to complete various questions pertaining to her birthing experience and various demographic factors while the child completed a task to assess empathic behaviour.

## Methods

### Participants

Two hundred and sixty four mother–child dyads were recruited from the Vancouver area to take part in a larger study looking at factors affecting empathic behaviour in children. Children ranged in age from 4 to 8 ( $M=5.92$  years,  $SD=.85$  years) with the bulk ( $n=256$ ; 96.97%) falling between the ages of 5 and 7. The sample was made up of 127 males (48.1%) and 136 females (51.5%) with 1 dyad choosing to not report child gender. The sample was predominantly Caucasian and Asian (or a mix) (90.2%), in line with the ethnic make-up of Vancouver, BC, but did include other ethnicities as well (e.g., Indian, African American, Latino, Native American). A total of 36 dyads did not report ethnicity. Families were relatively normally distributed around a median income of \$70–100 K and the majority of mothers (95.1%) had at least some post-secondary education while 70.1% had at least a BA.

### Measures

#### Birth outcomes

Mothers answered questions about their birth experience as part of the demographic information package. Mothers were asked about the planned location of birth ('Where did you intend on giving birth?' with options of 'Home', 'Hospital', and 'Other'), whether or not they received a caesarean section and whether or not this was planned ahead of time, and finally which drugs (if any) they had during their birthing experience (options of 'epidural', 'pitocin/oxytocin', and 'other'; mothers could select more than 1 option). For the planned location of birth question, three mothers selected 'Other' and clarified by stating they birthed in a birthing centre. For the purposes herein, we considered this closest to a home birth and thus the women were included in that category. Not all mothers answered all questions, but did provide information for at least one of the areas of analysis (location of birth, caesarean section, and drug intervention).

#### Empathic behaviour

Children were administered a modified version of the Stickers Task (Thompson et al., 1997). In the original Stickers Task, children are given a set number of stickers which they can share with other children and serves as an experimental measure of prosocial behaviour. Previous versions have focused solely on prosocial behaviours and thus no empathy inducing element has been included. In the current version, there were a few changes to the timing of when the children received the stickers, the number of people they could share with, and the inclusion of an empathy-inducing story. Herein, children were given 10 tokens and were told they could trade the tokens for stickers at the end of the study. After this, they were presented with images of two same-aged children ('targets') on a computer screen and the empathy-inducing story was read to them by the researcher: Children were told that 'the other day someone stole all of [the targets'] stickers' and were then told they could share their tokens with the targets if they wanted to or they could keep them for themselves. Children then divided up their tokens and the researcher took the tokens

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