



Introduction

Deaf and hard-of-hearing women are more likely to have chronic conditions, pregnancy complications, and poor birth outcomes than hearing women. These poor birth outcomes included preterm birth and very low birth weight. Our findings suggest that healthcare providers should communicate more accessibly with deaf and hard-of-hearing women.

Background

About one in twenty U.S. women between the ages of 18 and 39 have some degree of hearing loss (National Health Interview Survey, 2014). Being deaf or hard of hearing is associated with poorer health outcomes (Arlinger, 2003). There may be biological explanations for these poor health outcomes, but poor communication may also play a role. Inadequate communication between providers and deaf or hard-of-hearing people can make accessing healthcare and health information more difficult (McKee, Barnett, Block, & Pearson, 2011).

Several studies have shown different health outcomes between deaf and hard-of-hearing adults and adults who are not deaf or hard of hearing, but there are fewer studies about the differences between deaf and hard-of-hearing pregnant women and their infants and their hearing counterparts.

There have been only a few United States population-based studies of pregnancy outcomes among deaf and hard-of-hearing women (Mitra, Akobirshoev, McKee, & Iezzoni, 2016; Schiff, Doody, Crane, & Mueller, 2017).

Each of these studies compared birth outcomes between DHH and non-DHH women. Unfortunately, these studies' findings were inconsistent. While Mitra et al. found that deaf and hard-of-hearing women were more likely than hearing women to have infants born preterm and low-birth-weight infants, Schiff et al. found no differences between the two groups of women. This study introduced more rigor by using population-based, longitudinal data to compare pregnancy complications, birth characteristics, and neonatal outcomes between deaf and hard-of-hearing women and their hearing counterparts.

This study examined pregnant women and their infants born in Massachusetts between 1998 and 2013.

Findings

Deaf or hard-of-hearing women were more likely to have chronic medical conditions and pregnancy complications. These conditions included

- preexisting diabetes (about 3% of DHH women vs. 1% of non-DHH women),
- gestational diabetes (9% vs. 5%),
- preeclampsia and eclampsia (6% vs. 5%),
- and placental abruption (2% vs. 1%).

Deliveries to deaf or hard-of-hearing women were significantly associated with poor birth outcomes, including preterm birth (9% for deaf and hard-of-hearing women, compared with 7% for hearing women), low birth weight (7% vs. 6%) or very low weight (2% vs. 1%), and low one-minute Apgar score (10% vs. 8%) or low five-minute Apgar score (2% vs. 1%).



We found no significant differences in size for gestational age, fetal distress, or stillbirth between the two groups of women.

Implications

Deaf and hard-of-hearing women were more likely to have chronic conditions, pregnancy complications, and poor birth outcomes. These poor outcomes included preterm birth and very low birth weight, even after accounting for race and socioeconomic status. Roughly two-fifths of DHH women in this study used a language other than English; this probably reflects a large proportion of Deaf signers. Other research suggests that healthcare settings marginalize Deaf signers (McKee, Moreland, Atcherson, & Zazove, 2015). Even for people who don't use sign language, providers' lack of familiarity with hearing loss and alternative communication affects healthcare communication and delivery (McKee et al., 2015). When communication is poor, people are less likely to follow providers' directions, use health services appropriately, and practice healthy behavior (Stewart, 1995). Each of these could contribute to the disparities observed in the current study.

Providers should understand and support deaf and hard-of-hearing women before, during, and after pregnancy. More research about these women's experiences can help policymakers, medical providers, and agencies develop effective strategies to improve healthcare and health outcomes. Inaccessible communication isn't the only barrier to healthcare that deaf and hard-of-hearing women face. Deaf and hard-of-hearing people are more likely to have anxiety and depression, too (Fellinger, Holzinger, & Pollard, 2012). Anxiety and depression may affect their pregnancy outcomes. Effective strategies may involve training for healthcare professionals and more supports, such as mental

health services, to improve deaf and hard-of-hearing women's well-being.

Methods

The data for this study were from the Massachusetts Pregnancy to Early Life Longitudinal (PELL) data system, a longitudinal, population-based reproductive health data set. The sample for the study includes women who gave birth to single babies (not twins) in Massachusetts between January 1998 and December 2013. This includes 1,188,676 women, including 1,385 DHH women and 1,187,291 non-DHH women. We compared the women and their infants according to these conditions:

- Chronic preexisting medical conditions (ex: pregestational diabetes, chronic high blood pressure)
- Pregnancy complications (gestational diabetes, preeclampsia, eclampsia, placenta previa, and placental abruption)
- Complications during labor and delivery
- Birth outcomes (preterm birth, low birth weight, very low birth weight, fetal distress, one-minute Apgar score, five-minute Apgar score, size for gestational age, and stillbirth)

Adapted from Mitra, M., McKee, M.M., Akobirshoev, I., Valentine, A., Ritter, G., Zhang, J., McKee, K., & lezzoni, L.I. (2020). Pregnancy, birth, and infant outcomes among women who are deaf or hard of hearing. *American Journal of Preventive Medicine*, 58(3), 418-426.

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