Sigma's 30th International Nursing Research Congress

Maternal Outcomes in English-Speaking and Non-English-Speaking Women in New England

Katharine A. Green, PhD, APRN, CNM, MS
College of Nursing, University of Massachusetts Amherst, Amherst, MA, USA

Purpose:

Healthy People 2020 goals include the reduction in morbidity, mortality and complications in childbearing women. Healthy Migrant Theory posits that immigrants are more likely to be healthier than the general receiving population. Language acquisition is thought to be the primary marker of acculturation to the dominant society in a receiving geographic area, and effective communication in English is a marker of acculturation in the United States. In the U.S., 23% of babies are born to immigrant women, many of whom do not speak English. There are several care models for labor and delivery in the United States, and nurse midwifery and physician care models are legal in all states. There is good evidence that women who receive midwifery care have improved maternal outcomes, and that women who are not well acculturated to the dominant culture in the United States have improved neonatal outcomes. However, the maternal outcomes of women who do not communicate in English have not been well studied, nor is it known whether care during parturition by midwives when compared to physicians makes a difference in such women.

Maternal care during labor and delivery has had changes in recent years, including increased labor interventions such as induction of labor and regional anesthesia use, increased length of labor, and a maternal morbidity rate of 27%. Maternal outcomes during delivery have also had some changes, including decreased rates of episiotomy and operative vaginal deliveries. The cesarean rate in 2017 was 31.9%.

The purpose of this study was to determine whether there was a difference in maternal outcomes, defined as labor interventions and delivery methods, in English-speaking or non-English-speaking childbearing women, and when modified by nurse midwifery versus physician care models.

Methods:

This quantitative, retrospective study was conducted using analysis of labor, delivery, language, and care provider data extracted from women's labor and delivery electronic health records. The power analysis showed that the needed sample would be 787 subjects, for a small effect size and an $\alpha = 0.01$. Electronic health records of laboring patients admitted for delivery between 23 and 42 weeks' gestation were analyzed from 2013-2016 (N=11,656) from a tertiary care center in New England. Data were analyzed using descriptive statistics and Chi squared using SPSS.

Results:

Although not all eligible women requested a translator, 16.6% of women preferred to communicate in a language other than English. Women who did not speak English were less likely to receive epidural anesthesia or second degree or periurethral lacerations, and more likely to attempt and achieve vaginal deliveries after cesarean section and to have a postpartum hemorrhage.

When the effects were evaluated further by the moderating factor of type of care provider, women who did not speak English and received care from nurse midwives were more likely to attempt and achieve vaginal deliveries after cesarean than those who received care from physicians. However, they were also more likely to receive a cesarean section than those who spoke English and received care from nurse midwives. If women did not speak English and received care from physicians, they were less likely to

have labor induced, and were less likely to receive local anesthesia, episiotomies, or perineal lacerations. Further, they were less likely to have vaginal deliveries when compared to English speaking women who saw physicians.

Conclusion:

Women had improved delivery outcomes if they were unable to communicate in English when compared to English-speaking women. Healthy Migrant Theory was substantiated or not refuted in this sample by maternal delivery outcomes, although not by use of all labor interventions. All women, no matter what language used, should receive equivalent care during labor and delivery. All patients who communicate in a language that is not the dominant language should be offered translation services, and it should not be assumed that comprehension exists without a professional translator. Care should be taken that no bias or differentiation in treatment occurs between women who speak English and those who don't during labor and delivery.

Title:
Maternal Outcomes in English-Speaking and Non-English-Speaking Women in New England

Keywords:
language, maternal outcomes and midwifery

References:
Aizer, A., & Currie, J. (2014). The intergenerational transmission of inequality: Maternal disadvantage and health at birth. *Science, 23* (344), Issue 6186, 856-861. DOI:10.1126/science.1251872

Altman, M., Murphy, S., Fitzgerald, C., Anderson, F., Daratha, K. (2017). The Cost of Nurse Midwifery Care: Use of Interventions, Resources, and Associated Costs in the Hospital Setting. *Women's Health Issues, 27*(4), 434-440. https://doi.org/10.1016/j.whi.2017.01.002

Janevic, T., Loftfield, E., Savitz, D., Bradley, E., Illuzzi, J., & Lipkind, H. (2014). Disparities in cesarean delivery by ethnicity and nativity in New York City. *Maternal & Child Health Journal*, *18*(1), 250-257. doi:10.1007/s10995-013-1261-6

Benza, S., & Liamputtong, P. (2014). Pregnancy, childbirth and motherhood: A metasynthesis of the lived experiences of immigrant women. *Midwifery*, *30*(6), 575-584. doi:10.1016/j.midw.2014.03.005

Betrán, A. P., Ye, J., Moller, A., Zhang, J., Gülmezoglu, A. M., & Torloni, M. R. (2016). The increasing trend in caesarean section rates: Global, regional and national estimates: 1990-2014. *Plos ONE*, *11*(2), 1-12. doi:10.1371/journal.pone.0148343

Center for Immigration Studies (2015). Immigrants in the United States: A profile of America's foreign-born population. http://cis.org/node/3876. Retrieved February 7, 2015.

Centers for Disease Control (CDC) (2017). Pregnancy mortality surveillance system. Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/pmss.html. Retrieved 7/10/17.

Cheng, Y., Shaffer, B., Nicholson, J., & Caughey, A. (2014). Second stage of labor and epidural use: a larger effect than previously suggested. *Obstetrics & Gynecology*, *123*(3), 527-535.

Degni, F., Suominen, S. B., El Ansari, W., Vehviläinen-Julkunen, K., & Essen, B. (2014). Reproductive and maternity health care services in Finland: perceptions and experiences of Somali-born immigrant women. *Ethnicity & Health*, *19*(3), 348-366. doi:10.1080/13557858.2013.797567

Gadson, A., Akpovi, E., & Mehta, P. K. (2017). Exploring the social determinants of racial/ethnic disparities in prenatal care utilization and maternal outcome. *Seminars in Perinatology*, *41*(5), 308-317. doi:10.1053/j.semperi.2017.04.008

GBD 2015 Maternal Mortality Collaborators (2016). Global, regional, and national levels of maternal mortality, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet, 388*(10053), 1775-1812.

Goldberg, H., and Shorten, A. (2014). Patient and provider perceptions of decision making about use of epidural analgesia during childbirth: A thematic analysis. *Journal of Perinatal Education, 23*(3), 142–150. doi 10.1891/1058-1243.23.3.142

Hamilton, B., Martin, J., Osterman, M., Driscoll, A., Rossen, L. (2017). Births: Provisional data for 2016. *National Vital Statistics Rapid Release 002.* U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Janevic, T., Loftfield, E., Savitz, D., Bradley, E., Illuzzi, J., & Lipkind, H. (2014). Disparities in cesarean delivery by ethnicity and nativity in New York City. *Maternal & Child Health Journal*, *18*(1), 250-257. doi:10.1007/s10995-013-1261-6

Mahoney, N. (2015). Language and linguistics: A special report. Language learning. National Science Foundation, Arlington, VA. https://www.nsf.gov/news/special_reports/linguistics/learn.jsp. Retrieved 4/11/15.

Martin, J., Hamilton, B., Osterman, M., Driscoll, S., Drake, P. (2018). Births: Final data for 2016. *National Vital Statistics Report (67)*1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Migration Policy Institute (2018). Frequently requested statistics on immigrants and immigration in the United States. https://www.migrationpolicy.org/article/frequently-requested-statistics-immigrants-and-immigration-united-states#Numbers. Retrieved February, 2018.

Miller, C., Cohn, S., Akdagli, S., Carvalho, B., Blumenfeld, Y., & Butwick, A. (2017). Postpartum hemorrhage following vaginal delivery: risk factors and maternal outcomes. *Journal of Perinatology*, *37*(3), 243-248. doi:10.1038/jp.2016.225

Paterno, M., McElroy, K., Regan, M. (2016). Electronic fetal monitoring and cesarean birth: A scoping review. *Birth (43)*4, 277-284. DOI: 10.1111/birt.12247

Rubavathy, P., Stellagracy, G., & Kumar, K. (2015). Effectiveness of Social Support during labour on behavioural response among primi mothers. *International Journal Of Nursing Education*, *7*(4), 142-146. doi:10.5958/09749357.2015.00208.1

U.S. Department of Commerce: Census Bureau (2017). Commuting times, median rents and language other than English use in the home on the rise. https://www.census.gov/newsroom/press-releases/2017/acs-5yr.html. Retrieved April, 2018

U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion (2015). Healthy People 2020 topics and objectives: Maternal, infant and child

health. http://www.healthypeople.gov/2020/topics-objectives/topic/maternal-infant-and-child-health/objectives. Retrieved July, 2015.

Abstract Summary:
Maternal outcomes may vary by maternal language and type of care provider. This research utilized secondary analysis of labor and delivery records to show that maternal language and type of care provider had a significant effect on maternal outcomes during labor and delivery.

Content Outline:

1. Introduction

1. Healthy People 2020 Goals: Reduction in morbidity, mortality and complications in childbearing
2. Healthy Migrant Theory: those who are immigrants will be healthier than the general receiving population.
    1. In U.S., 23% of babies are born to immigrant women.
3. Language barriers to care with lack of language proficiency
    1. Nearly 20% U.S. population does not speak English at home
    2. 8.6% U.S. population unable to communicate in English
    3. Language acquisition is considered to be a proxy marker for acculturation
4. Changes in maternal care practice in U.S.:
    1. Increased induction of labor, regional anesthesia, and length of labor; 27% maternal morbidity rate
    2. Cesarean rate of 31.9%, decreased episiotomy and operative vaginal delivery rates.
    3. In all states, women may be cared for by nurse-midwives or physicians.

2. Purpose: To determine whether there was a difference in maternal outcomes, defined as delivery methods and obstetrical interventions during labor and delivery, in English-speaking and non-English speaking childbearing women

3.Methods: Retrospective data analysis of labor and delivery records of women admitted to a tertiary care center in an urban area

1. Sample size determination: Power Analysis: sample needed = 787: f= 0.10 (small effect size) and α = 0.01
2. Final sample N=11,656 labor and delivery records from relatively normal childbearing women > 23 weeks gestation.
    1. 16.6% of women preferred to not communicate in English

4. Findings:

1. Labor: women who did not speak English were less likely to receive epidural anesthesia, and more were likely to receive general or pudendal anesthesia. No significant differences found in induction/augmentation of labor, methods of induction of labor, external or internal electronic fetal or uterine monitoring, or artificial rupture of amniotic membranes
2. Delivery: Women who did not speak English were more likely to attempt and succeed at vaginal births after cesarean section, and less likely to have second degree or periurethral lacerations. There were no significant differences in other delivery methods or lacerations when evaluated solely by language use.
3. Women who did not speak English were more likely to have a postpartum hemorrhage following vaginal delivery. No significant differences found in antibiotic use or postpartum hemorrhage after cesarean.
4. Moderating factor: type of care provider on language use

1. If women did not speak English and received care from nurse midwives, they were more likely to attempt and achieve vaginal delivery after cesarean than those who received care from physicians. However, such women also had a higher percentage of cesarean sections than English-speaking women that received care from nurse midwives.
2. If women spoke English and received care from physicians, they were more likely to have labor induced, and were more likely to receive local anesthesia, episiotomies, and perineal lacerations. They were more likely to have vaginal deliveries when compared to non-English speaking women who saw physicians.
3. All women who did not speak English were more likely to have postpartum hemorrhage, no matter what type of care provider.

5. Conclusions:

1. Health Migrant Theory was substantiated in this sample by maternal delivery outcomes, although not by use of all labor interventions.
2. All patients preferring a language other than English should be offered translation services, and it should not be assumed that comprehension exists without a professional translator- preferably females in women's health areas
3. Care should be taken that no bias or differentiation in treatment occurs between women who speak English and those who don't during labor and delivery

First Primary Presenting Author
Primary Presenting Author
Katharine A. Green, PhD, APRN, CNM, MS
University of Massachusetts Amherst
College of Nursing
Clinical Assistant Professor
University of Massachusetts Amherst
Amherst MA
USA

Author Summary: Katharine Green, PhD, CNM, FACNM is a clinical assistant professor at the University of Massachusetts Amherst, and a practicing nurse midwife. She received her doctorate in 2018 for her work on maternal outcomes during labor and delivery in English and non-English speaking women, and was made a Fellow of the American College of Nurse Midwives one week later. Dr. Green's interests are in maternal outcomes, nursing education, and public policy related to women's health care.