Published in final edited form as:

J Midwifery Womens Health. 2017 January ; 62(1): 88–92. doi:10.1111/jmwh.12498.

Where Do You Feel Safest?: Demographic Factors and Place of Birth

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Abstract

Introduction—The vast majority of planned out-of-hospital births in the United States occur among white women; no study has addressed whether black women prefer out-of-hospital birth less or whether this racial disparity is due to other causes such as constrained access. This study sought to answer the question of whether white and black women feel safest giving birth in out-of-hospital settings at different rates, and whether this answer is associated with other socioeconomic indicators.

Methods—An interview of 634 nulliparous women during the third trimester of their pregnancy in Michigan provided data regarding where women felt safest giving birth. Feeling safest giving birth out-of-hospital was examined in relation to socioeconomic factors including race, age, household income, education, residence in a high-crime neighborhood, partnered status, and type of insurance.

Results—This study found that black and white women say they feel safest giving birth in out-of-hospital settings at similar rates (11.5% and 13.1% respectively). Logistic regression results showed that poverty and having education beyond high school were the only sociodemographic indicators significantly associated with feeling safest giving birth out-of-hospital.

Discussion—Disparities evident in planned homebirth and birth center rates cannot be explained by racial differences in feelings toward out-of-hospital birth and should be addressed more specifically in public policy and future studies.

Keywords

health disparities; homebirth; birth center; midwifery; quantitative research

INTRODUCTION

About 1.5% of births in the United States occur outside a hospital setting.¹ The overwhelming majority of planned homebirths and birth center births in the United States are chosen by white women,^{2–5} while a greater percentage of unplanned out-of-hospital births are experienced by black women.⁶ Of the 1.5% of birthing women who have an out-of-hospital birth in the United States and Canada, only about 2% are black.^{1–4}

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Conflict of Interest:

The authors have no conflicts of interest to disclose.

To date, studies of out-of-hospital birth have focused on perinatal outcomes,⁷ women's satisfaction with care,⁸ and cost analysis^{9, 10} rather than sociodemographic characteristics of women choosing out-of-hospital birth. No studies have investigated the racial disparity in out-of-hospital birth from the perspective of women's preferences for place of giving birth. This study addressed the following questions: Do white and black women endorse feeling safest giving birth outside of a hospital at different rates? Do women who feel safest giving birth out-of-hospital differ from women who feel safest giving birth in a hospital based on other sociodemographic indicators such as age, income, education, insurance status, or living arrangements?

Most women in out-of-hospital birth studies have been highly-educated, married, and white.^{11,12} For instance, one of the few studies examining why women choose homebirth included participants who were mostly married (91%) and white (87%).¹¹ Cheyney, et al. found that 58% of women who planned homebirths had finished 4 years of college.⁴ Cross-cultural studies have focused on the safety of planned homebirths, but have not discussed disparities in access.^{13,14} An integrative review of twenty-one articles discussed women's experiences in choosing to give birth either hospital or out-of-hospital birth, and identified themes related to attitudes toward medicalization of birth, the midwifery model of care, preferences, and choice.¹⁵ However, the included studies did not address the relevance influence of the women's demographic factors beyond their nationality; because the studies were conducted across 7 different countries, there were country-specific restrictions or supports for midwifery care and out-of-hospital birth setting opportunities identified.¹⁵ No studies have focused specifically on why women choose hospital birth, thus it is unknown how many women make this choice because of financial limitations, or other demographic considerations.

METHODS

Recruitment

Data used for this cross-sectional secondary analysis were collected as part of the prospective study "Psychobiology of PTSD & Adverse Outcomes of Childbearing" (NIH NR008767; common name "the STACY project"). The recruitment, retention, and survey procedures are presented elsewhere in detail,¹⁶ but key information is summarized here.

Eligibility requirements for this study were that participants be 18 years or older, nulliparous, less than 28 weeks gestation, and able to speak English. The STACY study recruited an unselected community sample of women in early pregnancy, using convenience sampling of women participants recruited at three health systems' prenatal clinics in Michigan between August, 2005 and May, 2008, with approval from all three Institutional Review Boards. The health systems included one in Ann Arbor, which serves predominantly privately insured patients, and two health systems located in Detroit that serve predominantly Medicaid recipients. Women who met eligibility requirements were invited to participate in a survey about "stressful things that happen to women, emotions, and pregnancy" by their obstetric nurses at initiation of prenatal care. The participants were initially provided written consent documents, and their contact information was conveyed to a survey research organization (DataStat, Inc., Ann Arbor, MI), that obtained further oral

consent at each phone research interview interaction. A federal certificate of confidentiality was procured for this study to provide additional confidential protections for participants. Participants were paid \$20 for each research interview.

After completion of the first research interview in early pregnancy, the sample was then stratified into cohorts based on trauma exposure, posttraumatic stress disorder (PTSD), and a control group of women who were not exposed to trauma, then followed longitudinally. Of an initial 1581 women who completed an early pregnancy survey, 647 were reached and completed a late-gestation (35-week) interview that contained questions about preferred place of birth and type of provider.

Measures

Initial Interview—During the first research interview in the woman's early pregnancy, STACY participants' demographic information, including income, education, race/ethnicity, and health risk behaviors, was collected using standard items from the Center for Disease Control (CDC) Perinatal Risk Assessment and Monitoring Survey.¹⁷ The first research interview also collected information on women's lifetime trauma exposure and mental health status; which were used for primary analyses focusing on the study's overall aims, reported in 2009.¹⁶

Late Gestation Interview—The purpose of the late gestation interview was to assess the woman's health during pregnancy, conduct interim trauma exposure and mental health assessment, and to ask questions about preparation for labor and parenting. These included questions regarding availability of pregnancy supports such as childbirth classes and doulas. This present analysis focuses on the women who answered an investigator-generated question regarding place of birth and birth attendants (n = 634). Participants were asked, "If you could give birth anywhere you wanted, would you feel safest in a hospital, in a birth center, or at home ("other" also an option)." For purposes of analysis, participant responses were dichotomized into "yes" for feeling safest in an out-of-hospital setting if the participant indicated they would feel safer at a home, birth center, or "other" setting, and "no" for those who indicated they would feel safest in a hospital setting.

Analysis

Descriptive and bivariate statistics were calculated for feeling safer out-of-hospital and dichotomous sociodemographic factors, including ethnicity, age, household income, education, residence in a high-crime neighborhood,¹⁸ partnered status, and type of insurance. Statistically significant bivariate relationships were entered as predictor variables in a simple logistic regression model predicting interest in out-of-hospital birth. Statistical analyses were conducted using software package SPSS 17.0 (SPSS Inc., Chicago, IL.).

RESULTS

Women participants in the STACY study represented a community sample of women in early pregnancy, however by the time of the late gestation survey women had been stratified into cohorts based on trauma and PTSD (and the lack thereof). Sub-analyses performed to

assess whether there was more trauma exposure or PTSD in the subsample of women who indicated they would feel safest giving birth out of hospital showed no statistically significant effect for either trauma exposure or PTSD. The women who endorsed out-of-hospital birth in STACY did differ from the women who endorsed hospital birth in some important demographic and socioeconomic areas.

Table 1 presents a description of the demographic characteristics of these participants overall and by whether they felt safest giving birth in or out of a hospital. Of the black women, 24 (11.5%) said they felt safest giving birth out-of-hospital, compared to 42 (13.1%) of the white women; a difference that was not statistically significant. Eighty women said they felt safest giving birth in an out-of-hospital setting: 51 chose birth center, 28 chose home, and one chose 'other.' Women who felt safest giving birth in an out-of-hospital setting were more likely to be older than 20 years ($X^2=5.9$, $df1$, $P=.02$), and were even more likely to be older than 30 years ($X^2=8.5$, $df1$, $P=.005$). Women who endorsed feeling safest in an out-of-hospital setting were more likely to have annual household income less than \$15,000 ($X^2=4.2$, $df1$, $P=.049$). They were also less likely to have not completed high school ($X^2=4.6$, $df1$, $P=.03$), or have a high school equivalency without college experience ($X^2=4.2$, $df1$, $P=.04$), and more likely to have a master's degree education ($X^2=13.6$, $df1$, $P=.001$). Women did not differ in their response to the birth setting question based on residence in a high crime zip code, whether or not they were partnered, whether or not they were privately insured, and whether or not they were currently a student.

Table 2 presents results of a simple logistic regression model predicting that a woman would say she feels safest giving birth in an out-of-hospital setting. Variables which were found to be statistically significant at the bivariate level were included as predictors in the model: being older than 20 years, being older than 30 years, having a household income less than \$15,000, having less than a high school education, having high school equivalency but no college, and having a master's degree. Poverty, being older than 30 years, and having a master's degree independently predicted that a woman would feel safest giving birth outside of a hospital, whereas being pregnant at less than 20 years of age and having high school equivalency or less than a high school education were no longer independent predictors.

DISCUSSION

In contrast to the reality that only 2% of women in the United States who have planned homebirths and 6% who give birth at birth centers are black women,²⁻⁵ this study reveals that black and white women (and, indeed, women of all ethnicities in our study) planning hospital births expressed positive feelings toward out-of-hospital birth at similar rates. These positive feelings were consistent across groups of black and white women at 11.5% and 13.1% respectively, a difference that was not statistically significant. Overall, 80 out of 634 women, or 12.6%, said they would feel safest giving birth outside of a hospital, either at a birth center or at home or another location.

A clear difference in rates of planned out-of-hospital births with professional attendants has been noted between black and white women.²⁻⁵ For example, the study by Johnson and Daviss of women who intended to give birth at home in North America in the year 2000

reported that out of 5418 women 4846 (89.4%) were white, and only 70 (1.3%) were black.³ This ratio improved only slightly between the years 2004-2009 in a similar sample; Cheyney et al reported in 2014 that out of 16,924 women intending to give birth at home during that time, 15,614 (92.3%) were white, and 361 (2.1%) were black.⁴ Our findings indicate that the disproportionate number of planned homebirths and birth center births in the United States to white women is not because of differences in feelings about the safety of out-of-hospital birth. Other possible explanations that should be explored include differential access and knowledge about options.

Women who said they feel safest giving birth out-of-hospital were more likely to have education beyond high school, to make less than \$15,000 per year, and to be older. This was a consistent finding for black and white women, and replicates previous studies of out-of-hospital birth.³⁻⁵ Johnson and Daviss reported that of women who intended to give birth at home in the United States and in two Canadian provinces in the year 2000, 1256 women (23.2%) had lower socioeconomic status, and over 50% of the sample were older than 30 years.³ Cheyney et al reported that of 16,924 women intending to give birth between 2004-2009, 8300 (58%) had greater than or equal to a 4-year college education.⁴ Our logistic regression results found that both having low income and having a master's degree had independent but statistically significant predictive effects. This means that there are potentially three groups of women who feel safest giving birth in out-of-hospital settings: 1) women who have higher levels of education and also less income (for example, graduate students or undergraduate students who have children during high school or college); 2) women who have higher levels of education who are not low-income; 3) women who are low-income and who have less than a high school education. More research is needed to understand this disparity and to understand the seemingly incongruous high-education-but-low-income profile of women who endorse out-of-hospital birth. We speculate that the reasons that these groups may be interested in out-of-hospital birth may vary, but this has not been studied. Qualitative and phenomenological research into women's understanding of "safety" is warranted. "Feeling safe" might refer to avoidance of medicalized birth for some women, but may reflect other women's vulnerability based on discrimination, prior negative experiences with medical professionals, or another reason.

This study is limited by a number of factors. Firstly, this was a study of women who planned hospital births. Although we asked women "if you could give birth anywhere..." the reality is that most women in the US are constrained to birth in hospitals, where insurance payers will cover the costs. Although Medicaid does reimburse homebirth costs for certified nurse-midwives (CNMs) in Michigan, there are very few CNMs who attend out-of-hospital birth. There are no studies that provide statistics about CNMs who attend homebirth in Michigan; a search of the grey literature revealed exactly one CNM who does attend homebirth near the study area. Thus this may have been a purely hypothetical question, and one that participants may not have formed thoughts about prior to being asked the question. Furthermore, we do not know what prior knowledge participants had about homebirth or birth center birth that might have influenced their response, nor do we know how participants might differ in other ways beyond these demographic characteristics based on their specific answer about homebirth or birth center birth. More extensive interviewing would yield insight into how

strong and long-standing preference for home or birth center is for the woman. Future studies should include women who have the full array of options.

A second limitation is that this question was asked at 35 weeks gestation. Answers given earlier in pregnancy, when presumably more options are still open to women, might be different. Thirdly, there were only 80 women who endorsed feeling safest giving birth outside of a hospital in these data, which limits possibilities for multivariate modeling. A fourth limitation is that this study is regional, not national. Regional variations in preference for out-of-hospital birth may exist. Fifth, the hospitals in our study all had large midwifery practices. Women giving birth at hospitals without midwifery practices might express different preferences. Finally, this study was limited to nulliparous women. The finding that black and white women feel safest giving birth in an out-of-hospital setting at a rate of approximately 12% might underrepresent actual rates. Women who achieve out-of-hospital birth tend to be multiparous, so future studies should compare the preferences and knowledge of out-of-hospital birth between primiparous and multiparous women.

CLINICAL IMPLICATIONS

Health care professionals can benefit from understanding more about this subset of women who feel safest giving birth outside of a hospital but who plan to give birth in hospitals. For 2014, that 12% would represent 478,569 U.S. births.¹ If a woman accesses maternity care with the caregiver she chooses and gives birth where she feels safest, this may decrease maternal stress, leading to better pregnancy and birth outcomes and experiences. Studies have documented the negative impact of stress²⁰ and the positive impact of labor support²¹⁻²³ on birth outcomes such as pre-term birth, cesarean section rate, and breastfeeding.

This is the first study to our knowledge to assess whether black women are less interested than white women in out-of-hospital birth or whether other factors (e.g., access) drive the clear disparity in achieved out-of-hospital birth. Black women endorsed feeling safest giving birth in an out-of-hospital setting at similar rates to white women in this study. Researchers can more confidently turn toward other explanations. To the extent that it can be seen as a proxy for desire for physiologic birth, knowing that approximately 12% of both black and white women express feeling safest giving birth outside of a hospital should inform the development of policies and practices and further research that will benefit birthing mothers inside and outside of hospitals.

Acknowledgements

This study was funded by the National Institutes of Health, National Institute of Nursing Research grant NR008767 (Seng, P.I.), "Psychobiology of PTSD and Adverse Outcomes of Childbearing." The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Nursing Research or the National Institutes of Health. The authors wish to thank the obstetric nurses and research participants who made this study possible.

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QUICK POINTS

- Black women make up only about 2% of planned homebirths and 6% of birth center births; despite this disparity, this study finds that black and white women say they feel safest giving birth out-of-hospital at the same rate.
- Low-income women are more likely to say they feel safest giving birth out-of-hospital.
- Women who have a high school education and beyond are more likely to say they feel safest giving birth out-of-hospital.
- Birth professional training should specifically address the needs of the approximately 12% of *both* black and white women who say they feel safest giving birth out-of-hospital.

Table 1

Sociodemographic Factors Associated with Interest in Giving Birth in an Out-of-Hospital Setting

Sociodemographic Factor	Total (N=634) n (%)	Interested in giving birth in an out-of- hospital setting (n=80) n (%)	Not interested in giving birth in an out-of- hospital setting (n= 554) n (%)	P
Race/Ethnicity				
Black	208 (32.8)	24 (30.0)	184 (33.2)	.57
White	350 (55.2)	42 (53)	308 (55.6)	.72
Asian	52 (8.2)	11 (13.8)	41 (7.4)	.08
Latina	32 (5.0)	3 (3.8)	29 (5.2)	.79
American Indian/Alaska Native	9 (1.4)	1 (1.3)	8 (1.4)	1.0
Native Hawaiian/Pacific Islander	4 (0.6)	1 (1.3)	3 (0.5)	.41
Other Race	24 (3.8)	4 (5.0)	20 (3.6)	.53
Age, years				
Pregnant as a teen (18-20)	108 (17.0)	6 (7.5)	102 (18.4)	.02 ^a
21 to 30	351 (55.4)	41 (51.3)	310 (56.0)	.47
>30	175 (27.6)	33 (41.3)	142 (25.6)	.005 ^a
Income				
Poverty (income <\$15,000)	101 (15.9)	19 (23.8)	82 (14.8)	.049 ^a
\$15,000 – 25,000	89 (14.0)	10 (12.5)	70 (12.6)	.86
\$25,000 – 50,000	115 (8.1)	21 (26.3)	59 (10.6)	.06
>\$50,000	303 (47.8)	30 (37.5)	50 (9.0)	.06
Education				
Low education (<high school	227 (35.8)	20 (25)	207 (37.4)	.03 ^a
High school or equivalency	198 (31.2)	17 (21.3)	63 (11.4)	.04 ^a
Associate's degree	53 (8.4)	7 (8.8)	73 (13.2)	.83
Bachelor's degree	162 (25.6)	20 (25.0)	60 (10.8)	1.0
Master's degree	131 (20.7)	29 (36.3)	51 (9.2)	.001 ^b
Doctorate or equivalency	59 (9.3)	3 (3.8)	77 (13.9)	1.0
Currently full or part time student	104 (16.4)	19 (23.8)	61 (11.0)	.07
High crime zip code (>US avg.)	199 (31.4)	23 (28.8)	176 (31.8)	.59
Not privately insured	134 (25.4)	19 (29.2)	115 (24.8)	.45
Living Arrangement				
Living alone	34 (5.4)	4 (5.0)	76 (13.7)	1.0
Living with spouse or domestic partner	435 (68.6)	60 (75.0)	20 (3.6)	.20

Sociodemographic Factor	Total (N=634) n (%)	Interested in giving birth in an out-of- hospital setting (n=80) n (%)	Not interested in giving birth in an out-of- hospital setting (n= 554) n (%)	P
Living with parents or relatives	153 (24.1)	15 (18.8)	65 (11.7)	.27
Living with housemate(s)	11 (1.7)	1 (1.3)	79 (14.3)	1.0

^a $P < .05$.

^b $P < .01$.

Table 2

Logistic Regression Analysis for Sociodemographic Variables Predicting Interest in Giving Birth in an Out-of-Hospital Setting^a

Model	B	P	OR	95% CI
Age 18-20 years	−0.88	.08	0.41	0.15-11
Age >30 years	0.61	.03	1.83	1.06-3.16
Poverty (< \$15K)	1.56	<.001	4.74	2.25-9.96
< High school education	−0.34	.63	0.71	0.17-2.9
High school equivalency	−0.39	.31	0.68	0.32-1.45
Master's degree	0.88	.003	2.41	1.35-4.28

^aNagelkerke R^2 = .10, X^2 = 35.12, df = 6, <.001.