Access to and Satisfaction with Prenatal Care Among Pregnant Women with Physical Disabilities: Findings from a National Survey

Monika Mitra, PhD,¹ Ilhom Akobirshoev, PhD,¹ Nechama Sammet Moring, CPM, MA,¹
Linda Long-Bellil, PhD, JD,² Suzanne C. Smeltzer, EdD, RN, FAAN,³
Lauren D. Smith, MPH,¹ and Lisa I. Iezzoni, MD, MSc⁴

Abstract

Background: Previous qualitative studies suggest that women with physical disabilities face disability-specific barriers and challenges related to prenatal care accessibility and quality. This study aims to examine the pregnancy and prenatal care experiences and needs of U.S. mothers with physical disabilities and their perceptions of their interactions with their maternity care clinicians.

Materials and Methods: We conducted the first survey of maternity care access and experiences of women with physical disabilities from 37 states. The survey was disseminated in partnership with disability community agencies and *via* social media and targeted U.S. women with a range of physical disabilities who had given birth in the past 10 years. The survey included questions regarding prenatal care quality and childbirth and labor experiences.

Results: A total of 126 women with various physical disability types from 37 states completed the survey. Almost half of the respondents (53.2%) reported that their physical disability was a big factor in their selection of a maternity care provider and 40.3% of women reported that their prenatal care provider knew little or nothing about the impact of their physical disability on their pregnancy. Controlling for maternal demographic characteristics and use of mobility equipment, women who reported that their prenatal care provider lacked knowledge of disability and those who felt they were not given adequate information were more likely to report unmet needs for prenatal care.

Conclusions: The findings from this study suggest the need for training and education for clinicians regarding the prenatal care needs of women with physical disabilities.

Keywords: disability, prenatal care, reproductive health

Introduction

WOMEN WITH PHYSICAL DISABILITIES experience multiple social, economic, and health disparities.^{1,2} Women with disabilities also experience high rates of poverty and low access to educational, employment, and other community opportunities and resources.³ Adults with physical disabilities have also reported important barriers within the healthcare

system, including physically inaccessible facilities, lack of needed adaptive equipment (*i.e.*, scales that can accommodate a wheelchair), and gaps in patient–provider communication, as well as higher-than-expected levels of medical mistrust.^{4,5} Particular access gaps have been noted in women's healthcare, and women with disabilities are less likely to receive consistent routine reproductive healthcare and gynecological cancer screenings.^{6,7}

¹The Lurie Institute for Disability Policy, The Heller School for Social Policy and Management, Brandeis University, Waltham, Massachusetts.

²Center for Health Policy and Research, University of Massachusetts Medical School, Shrewsbury, Massachusetts.

³Center for Nursing Research, Villanova University College of Nursing, Villanova, Pennsylvania.

⁴Department of Medicine, Harvard Medical School, The Mongan Institute for Health Policy, Massachusetts General Hospital, Boston, Massachusetts.

As pregnancy and birth outcomes are intimately tied to such social determinants of health, with disparities noted in populations that lack access to economic, social, and health-care opportunities,^{8,9} the maternity care needs and experiences and outcomes of women with physical disabilities warrant public health attention.¹⁰ Although the exact prevalence of pregnancy among women with physical disability is unknown, it is not insignificant, and likely rising.¹¹ Although many women with physical disabilities have a positive birth experience and are very satisfied with the quality of their maternity care experience, emerging evidence suggests that women with physical disabilities are at increased risk of pregnancy complications and adverse birth outcomes, including preterm labor and low birth weight infants.^{12–15}

Although questions regarding its efficacy remain, equitable access to adequate and high-quality prenatal care is a well-recognized public strategy for improving birth outcomes among vulnerable populations,¹⁶ and may be useful for women with disabilities.¹⁷ However, evidence suggests that people with disabilities experience significant gaps in patient-provider communication and perceive patronizing or other negative attitudes from clinicians and medical staff.^{18,19} Clinicians often lack education regarding the nonmedical aspects of disability experiences, including the psychosocial needs, experiences, and capabilities of adults with disabilities, as well as the nonclinical challenges they face.^{20,21} Without such education, clinicians may hold unconscious negative bias regarding people with disabilities.²² Clinicians may also lack knowledge about the interaction between specific disabilities and conditions such as pregnancy.^{12,23}

Specific to reproductive health and maternity care, several qualitative studies report that women with physical disabilities often perceive their clinicians as possessing negative attitudes regarding sexuality, motherhood, and childbearing among people with disabilities.^{19,24,25} These perceived attitudes reflect larger social stigmas regarding sexuality and disability, including negative perceptions of pregnancy and motherhood by women with disabilities, and the myth of adults with disabilities as categorically asexual.^{26,27} This stigma and lack of knowledge appear to impact prenatal care, as perceived by women with physical disabilities.^{19,25,28} For example, a recent qualitative study found that women with physical disabilities perceived that their clinicians lacked knowledge of both their disability in general and its potential interactions with their pregnancy, and struggled to find disability-informed maternity care providers.^{15,29} They also reported other barriers, including inaccessible equipment, such as scales and examination tables, and perceived negative attitudes from their clinicians.^{15,29} These qualitative findings are supported by the general lack of clinical guidelines related to maternity care of women with physical disabilities.^{10,30}

Although the qualitative literature suggests that many women with physical disabilities report negative prenatal care experiences, these survey data provide a more comprehensive exploration of prenatal care experiences and needs from the perspective of women with physical disabilities. We, therefore, conducted a survey of access, experiences, and perceived quality of maternity care among U.S. women with physical disabilities. This analysis of the survey data focuses on maternal satisfaction with prenatal care, including women's perceptions of their prenatal care providers and barriers to equitable, high-quality prenatal care.

Materials and Methods

Data for this study were derived from the first survey on pregnancy among women with physical disabilities in the United States. The survey collected basic demographic data and asked close-ended questions regarding prenatal care needs and experiences and respondents' perceptions of their clinicians. Several questions also included open-ended text responses to enable participants to share additional information they felt to be important. The survey was conducted primarily online although respondents could opt to have the survey administered by a research team member over the phone by calling a phone number we provided. The survey was fielded from January to March 2015 and was available in English and Spanish.

Inclusion criteria

Inclusion criteria were as follows: (1) self-identified female gender, (2) aged 21 years or older at the time of survey completion, (3) had given birth within the past 10 years in the United States, and (4) currently have a physical disability that was also present before and during the pregnancy with their youngest child. Physical disability was defined by a positive response to one or more of the following screening questions: (1) do you currently have difficulty walking without equipment or assistance, (2) do you currently have difficulty using your arms or hands, and (3) are you a woman with dwarfism? To be eligible, respondents had to confirm that the difficulty walking or using arms or hands was also present before and during pregnancy. Screening questions were used at the start of the survey to exclude respondents who did not meet these criteria.

Recruitment

We partnered with local and national disability-related organizations to recruit participants using purposeful sampling methods. These methods included posting on a variety of disability-related social media groups, distribution through community-based organizations, national disability organizations, independent living centers across the United States, vocational rehabilitation commissions, and *via* individuals active in the disability community. Individuals viewing the study information also shared it within their own social media networks. These partners shared information about the opportunity to participate in the survey with their membership and followers using social media. Most participants responded to the survey online. Upon reaching the survey website, participants were presented with an introductory screen, which described the purpose of study, stated who was conducting the study, the funding source, and informed participants that the study is voluntary, they may skip any question or stop at any time, their individual answers will be confidential, and whom to contact with any questions. People who chose to proceed to the next screen were then presented with the questions related to survey eligibility.

Statistical analyses

We first calculated descriptive statistics to characterize the participants. We also calculated rates of prenatal care access and the respondent-described adequacy, accessibility, and quality of their prenatal care experiences. Furthermore, we

performed a multivariate logistic regression to identify correlates associated with respondents' perceptions of their care quality.

The main dependent variable was whether mothers with physical disabilities reported they "needed better care from the person who provided prenatal care."

Model covariates included education (some college or higher vs. high school or lower), maternal age at delivery (21–29 years, 30–39 years, and ≥40 years), race/ethnicity (white vs. nonwhite or Hispanic), type of mobility equipment used (no equipment used, wheelchair or scooter, and other types of equipment), provider's knowledge about how physical disability might affect pregnancy (knew a lot or some vs. knew a little or nothing at all), and needed information about how physical disability might affect pregnancy (yes vs. no).

STATA 14 MP Software was used to complete statistical calculations.³¹ Two Institutional Review Boards at coinvestigators' respective institutions approved the study.

Results

The sample for this analysis comprised 126 women who met eligibility criteria and responded to all survey questions. All respondents completed the survey in English. An additional 17 women were deemed eligible but did not complete all questions and were, therefore, excluded from this analysis. An additional 187 potential respondents were found to be ineligible based on the screening questions.

Maternal characteristics

Table 1 presents respondents' characteristics. More than 85% of the survey respondents were 30 years old or older. Almost three out of four respondents were white, two-thirds were married, half had private health insurance, and almost 82% had some level of college education. Approximately 84% of the respondents reported difficulty walking before they became pregnant with their youngest child, 49% reported difficulty using their arms, and 18% reported having dwarfism. More than half of the respondents reported needing help with personal care needs, including eating, bathing, or dressing before their most recent pregnancy. About 54% of respondents used either a wheelchair or scooter, 22% used other types of assistive devices, including crutches, cane, walker, or leg or arm prosthesis, and 24% did not use any mobility devices.

Prenatal care experiences

Table 2 shows prenatal care-related measures including difficulty finding a prenatal care health practitioner, health practitioner's reactions and attitudes toward the woman's pregnancy, health practitioner's knowledge, prenatal care service quality and accessibility, satisfaction with the practitioner, and unmet needs. Table 2 also presents findings relating to prenatal care provider type.

The vast majority (90%) of respondents received their prenatal care from an obstetrician-gynecologist (OB-GYN) instead of another provider type, such as midwife or nurse practitioner. Almost one-quarter (22%) of respondents reported that it was "very" or "somewhat" difficult to find a prenatal care provider. Almost half (46%) of respondents reported visiting one or more additional healthcare providers before they selected the clinician who ultimately provided

TABLE 1. RESPONDENTS' SOCIODEMOGRAPHIC CHARACTERISTICS AT THE TIME OF PREGNANCY WITH YOUNGEST CHILD, *N* = 126

<i>Characteristics</i>	<i>Respondents</i>	
	<i>Frequency</i>	<i>%</i>
Age		
21–29 years	16	12.7
30–39 years	70	55.6
≥40 years	40	31.7
Race/ethnicity		
White, non-Hispanic	91	72.2
Black, non-Hispanic	9	7.1
Other, non-Hispanic	9	7.1
Latino	7	5.6
Unknown	10	7.9
Marital status		
Single never married	11	8.7
Unmarried partner	18	14.3
Married	86	68.3
Other	11	8.7
Education		
High school graduate or less	13	10.3
Some college	39	31.0
College or higher graduate	64	50.8
Unknown	10	7.9
Health insurance coverage		
Private	62	49.2
Public	59	46.8
Uninsured	5	4.0
Had difficulty walking without equipment/assistance?		
Yes	106	84.1
Had difficulty using arms or hands?		
Yes	62	49.2
Have dwarfism?		
Yes	22	17.5
Assistive technology used or help to get around		
Wheelchair (manual or power), scooter	67	53.6
Other (crutches, cane, walker, leg or arm prosthesis, etc.)	29	22.4
Did not need any equipment	30	24.0
Needed help with personal care		
Yes	68	54.0

their prenatal care. For more than half (53%) of survey respondents, their physical disability was a "big factor" in selecting their prenatal care provider.

Approximately 35% of respondents perceived negative reactions from healthcare providers—including primary care doctors, OB-GYNs, nurse practitioners, or midwives—about them having a baby. This reaction occurred before their pregnancy with their youngest child. Respondents attributed these perceived negative reactions to concerns about their ability to care for their baby, fear their physical disability would be passed on to their child, concern about maternal harm as a result of pregnancy or childbirth, concern about their ability to carry a pregnancy to term, and concern regarding the effects of disability on pregnancy.

Slightly less than half of respondents (40.3%) perceived that their prenatal care provider knew only a little or nothing

TABLE 2. REPORTS ABOUT PRENATAL CARE ACCESS AND EXPERIENCES, *N* = 126

Characteristics	Respondents	
	n	%
Finding a healthcare practitioner		
Type of health practitioners seen during pregnancy		
OB/GYN	111	89.7
Other health practitioners (nurse practitioner, midwife, <i>etc.</i>)	15	10.3
Difficulty finding prenatal healthcare practitioner		
Not very or not hard at all	98	77.8
Very or somewhat hard	28	22.2
Number of other healthcare practitioners seen before deciding on this healthcare practitioner		
0 (No other health practitioner)	64	51.2
1	25	20.0
2+	32	25.6
Don't remember	4	3.2
Physical disability as a factor for choosing a prenatal care provider		
A big factor	67	53.2
Not a big factor	59	46.8
Healthcare practitioner reaction to pregnancy		
Perceived negative response by a clinician to having a baby, before pregnancy		
Health practitioner did not have negative reaction	82	65.10
Health practitioner had negative reaction	44	34.9
Of perceived negative reactions, respondents' perceived reason		
You might not be able to take care of your baby	14	31.8
Your physical disability might be passed on to your child	13	29.5
Pregnancy or childbirth might be harmful to you	6	13.6
You might not be able to carry your baby to term	5	11.4
Your physical disability might affect the pregnancy	3	6.8
Perceived clinician knowledge of physical disability's effects on pregnancy		
Knew a lot or some	74	59.7
Knew a little or nothing at all	50	40.3
Health practitioner tried to learn more about how a physical disability might affect pregnancy ^a		
Yes	53	57.6
No	18	19.6
I don't know	22	22.8
Satisfaction with prenatal care health practitioner		
Rating of prenatal care health practitioner (10 point Likert scale with 10 being "Best provider possible" and 0 being "Worst provider possible")		
8–10	86	68.8
≤7	39	31.2
Did you need better care from your prenatal care health practitioner?		
Yes	32	25.4
Did you need more information about how your physical disability might affect the pregnancy?		
Yes	65	51.6
Did you need more information about how labor and delivery might go?		
Yes	83	65.1
Did you need something else from your healthcare practitioner?		
Yes	8	9.7

^aAmong healthcare practitioners who knew a lot or something about how the respondents' physical disability affected their pregnancy. GYN, gynecologist; OB, obstetrician.

about the impacts of physical disability on pregnancy when they initiated prenatal care. Of the respondents who perceived that their prenatal care provider initially knew nothing, little, or some about physical disability and pregnancy, 58% reported that their provider tried to learn more.

Accessibility of prenatal care settings

Women who used a wheelchair or a scooter were significantly more likely to report having difficulty with getting onto the examination table compared with those who used

other types of equipment or did not use any mobility equipment. Although 60% of respondents reported that it was somewhat difficult, very difficult, or impossible to transfer to an examination table without assistance, 87% of these respondents reported that they were always or usually examined on an examination table during their prenatal care. Similarly, 69% of respondents reported that they were always or usually weighed at their prenatal care visits, as is community standard in the United States. However, among those who were always, usually, or sometimes weighed, 44.5% found it somewhat or very difficult or impossible to get on a standard

(nonaccessible) scale without assistance. Approximately 66% of women who used a wheelchair or a scooter found it somewhat to very difficult or found it impossible to get onto the scale without assistance compared with 20% of other women.

Satisfaction with prenatal care provider and unmet prenatal care needs

The survey asked participants to rate their prenatal care provider on a scale of 0–10, with 10 being the best possible clinician and 0 being worst possible. Approximately 69% of all respondents ranked their prenatal care provider very highly, 8–10. About 31% of women with a physical disability rated their prenatal healthcare practitioners as not the best, giving them a score between 0 and 7 (Table 2).

However, in response to the multiple choice question, *For each of the following items, please indicate if you needed it during your pregnancy with your youngest child*, 25% of respondents reported needing better care from their prenatal care provider. An additional 52% reported needing more information about how their physical disability might affect their pregnancy, and 65% of respondents reported needing more information about how their labor and delivery might go. Respondents also had the option to complete an open text field to enter other unmet needs they encountered during their pregnancy that were not included in the listed responses. These responses included accessible examination tables and scales and insight into adaptive parenting resources and reassurance. Another respondent noted that she had an unmet need to be cared for “as a person, not a dwarf,” suggesting unmet relational needs.

Multivariable regression results

Table 3 explores variables associated with reporting unmet needs for better care from prenatal care providers. After controlling for maternal demographic characteristics (education, age, and race/ethnicity) and use of mobility devices, two factors were associated with needing better care from their prenatal care provider. Women who reported having a prenatal care provider who knew little or nothing about how their physical disability might affect their pregnancy [adjusted odds ratio (aOR): 6.0; 95% confidence interval (CI): 2.6–15.1; $p < 0.001$] and women who reported needing more information about how their physical disability might affect their pregnancy (aOR: 4.3; 95% CI: 1.8–10.5; $p < 0.001$) were more likely to report needing better care from their prenatal care provider.

Discussion

This study describes prenatal care experiences, with a focus on women's perceptions of their prenatal care providers. Although women with physical disabilities who participated in this survey reported fairly positive prenatal care experiences, there were also important gaps and areas of unmet need related to patient–provider relationships and communication. Patient–provider relationships are crucial to maternity care, and parents express preferences for providers who listen well and invest in relationships.^{32,33} Trust and communication are thought to be particularly important in maternity care relationships,³² suggesting a potential mechanism through which unmet prenatal care needs and less than

TABLE 3. ASSOCIATIONS BETWEEN REPORTED NEED FOR BETTER PRENATAL CARE AND OTHER VARIABLES, $N = 119$

Variables	<i>Needed better care from prenatal care provider</i>	
	OR	95% CI
Education		
Some college or higher (reference)	1	1
High school or lower	0.49	0.12–1.99
Maternal age		
21–29 years (reference)	1	1
30–39 years	0.23**	0.05–0.98
≥40 years	0.24*	0.05–1.12
Race/ethnicity		
White (reference)	1	1
Nonwhite or Hispanic ethnicity	1.02	0.33–3.14
Equipment type		
No equipment used (reference)	1	1
Wheelchair (manual or power), scooter	0.79	0.27–2.26
Other types of equipment	0.26**	0.07–0.94
Provider knowledge about how physical disability might affect pregnancy		
Provider knew a lot or some (reference)	1	1
Knew a little or nothing at all	5.98***	2.36–15.15
Needed information about how physical disability might affect pregnancy		
No (reference)	1	1
Yes	4.30***	1.76–10.53

The 2015 survey of women with physical disability.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

CI, confidence interval; OR, odds ratio.

ideal prenatal care experiences may contribute to disparities in maternity care outcomes.

In this study, we found high levels of satisfaction with prenatal care among women with physical disabilities. These findings are consistent with those reported in other studies on satisfaction with prenatal care in the overall obstetric population.^{34–36} Conversely in a qualitative study investigating deaf and hearing women's satisfaction with prenatal care, deaf women reported lower overall satisfaction with their prenatal care than hearing women and were less satisfied with the quality of patient–provider communication.³⁷ Interestingly, our study demonstrates a disparity between the high levels of prenatal care satisfaction with the reported needs for better patient–provider communication and improved clinician knowledge, information, and accessible provider settings. Notably, over one-third of survey respondents perceived that clinicians held negative or stereotypical beliefs about pregnancy, birth, and parenting by people with physical disabilities. This disparity between satisfaction and unmet needs for information, better communication, and accessible settings can potentially be explained at least, in part, by the theory of Fishbein and Ajzen³⁸ that satisfaction may be higher despite barriers and problems when expectations are lower. Galle et al.³⁴ have used a similar approach to explain higher levels of prenatal care satisfaction among women from lower socioeconomic backgrounds. This survey did

not measure care expectations, but this could be an explanation for the high satisfaction despite the unmet needs noted by participants in text entry responses. In other words, when expectations are lower, satisfaction may be higher despite the reported barriers that impeded their access to quality prenatal care.

There is compelling evidence from prior studies that maternal experiences of racism, both within and outside of the healthcare system, are associated with adverse infant outcomes in the general population.³⁹ Furthermore, several qualitative studies show that perceived negative and/or stereotypical beliefs and racist microaggressions by their prenatal care providers decreased trust, satisfaction, and overall perceived maternity care quality among mothers of color.^{40–42} We theorize that, although experiences of racism and of ableism are not identical, maternal perceived experiences of ableism and negative reactions to pregnancy by clinicians may have similar effects on perceived quality of prenatal care. Further research to test this relationship is recommended.

In addition, provision of information to enable informed patient decision-making is considered a crucial element of maternity care, given the personal nature of birth and the wide range of beliefs present among birthing parents.⁴³ Informed decision-making hinges on whether or not maternity care providers both possess relevant clinical knowledge and are able to communicate it effectively to their patients.⁴³ Survey respondents reported significant unmet informational needs and perceived that their prenatal care providers also had important knowledge gaps related to disability and pregnancy. Unmet information needs and perceived limited clinician knowledge were significantly associated with perceived need for better prenatal care. Notably, these information gaps persisted despite clinician efforts to learn more about how to best care for respondents. These findings reinforce the need for further development of a clinical evidence base related to pregnancy and disability.¹⁰

Limitations

There are several limitations to this study. Our convenience sampling strategy limits the generalizability of the findings to a wider population of women with physical disabilities in the United States. The findings of the study are subject to recall and social desirability bias and the biases of self-reported data. Of note, the recall period for mothers with physical disabilities who completed the survey can be as long as 10 years since they gave birth to their youngest child. Similarly, the findings can be subject to selection bias owing to use of purposive sampling strategy. Respondents recruited using social media in partnership with disability-related and other community-based organizations are potentially better connected to disability advocacy groups. In addition, women with particularly negative or positive prenatal care experiences may be more motivated to participate in the study.

Despite rather extensive national recruitment efforts, we obtained a relatively small sample size ($n = 126$). The authors speculate that factors contributing to this limited sample size could be lack of access to or participation in social media and technology or reluctance to participate due to fear of children getting taken away.^{24,44,45}

The study sample consisted of mostly white, higher income, married mothers with high levels of education and with private health insurance. This is in contrast to the general

population of reproductive-age women with chronic physical disabilities in the United States.¹¹ Using population-based data, Iezzoni et al.¹¹ found that reproductive-age women with high severity of chronic physical disabilities were less likely to have private health insurance, less likely to be married, and have lower levels of education. Therefore, the findings of this study may not reflect the experiences of general population of women with physical disabilities with fewer economic and educational opportunities, as well as racial, ethnic, and linguistic minorities with disabilities. The prenatal experiences for the general population of women with significant physical disabilities are likely worse. We acknowledge that this is an important gap, given the lack of research exploring the maternity care needs and experiences of mothers with disabilities who are from minority populations, low-income families, and with low education level. We recommend additional research to more fully explore these intersections. As a final limitation, there was no comparison group of women without physical disabilities in the study. The inclusion of a comparison group of women without physical disabilities who had given birth would enable researchers to compare the prenatal care access and experiences between women with and without disabilities.

Conclusions

This article presents findings from the first nationally fielded survey of prenatal care experiences and unmet needs of women with physical disabilities in the United States, with a focus on women's perceptions of their prenatal care providers. Although women reported positive prenatal care experiences, respondents also perceived that their prenatal care providers had negative reactions to their pregnancy and knowledge gaps related to pregnancy and disability. These findings illustrate the need for additional research, additional training for clinicians, and development of clinical practice guidelines related to disability and pregnancy, to promote equitable, effective maternity care for women with physical disabilities.

Acknowledgments

The authors acknowledge the help of all the people involved in this project, specifically women who participated in the survey, the organizations, and individuals who helped disseminate the survey, The Center for Survey Research, University of Massachusetts Boston for developing the survey questions, and the Office of Survey Research, University of Massachusetts Medical School for their assistance in fielding the survey. This research is funded by a grant from the National Institutes of Health, Eunice Kennedy Shriver National Institute of Child Health, and Human Development (Award No. R01HD074581). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Author Disclosure Statement

No competing financial interests exist.

References

1. Parish SL, Huh J. Health care for women with disabilities: Population-based evidence of disparities. *Health Soc Work* 2006;31:7–15.

2. Wisdom JP, McGee MG, Horner-Johnson W, Michael YL, Adams E, Berlin M. Health disparities between women with and without disabilities: A review of the research. *Soc Work Public Health* 2010;25:368–386.
3. Parish SL, Rose RA, Andrews ME. Income poverty and material hardship among U.S. women with disabilities. *Soc Serv Rev* 2009;83:33–52.
4. Drainoni ML, Lee-Hood E, Tobias C, Bachman SS, Andrew J, Maisels L. Cross-disability experiences of barriers to health-care access: Consumer perspectives. *J Disabil Policy Stud* 2006;17:101–115.
5. Iezzoni LI, Kilbridge K, Park ER. Physical access barriers to care for diagnosis and treatment of breast cancer among women with mobility impairments. *Oncol Nurs Forum* 2010;37:711–717.
6. Andresen EM, Peterson-Besse JJ, Krahn GL, Walsh ES, Horner-Johnson W, Iezzoni LI. Pap, mammography, and clinical breast examination screening among women with disabilities: A systematic review. *Womens Health Issues* 2013;23:e205–e214.
7. McRee A-L, Haydon AA, Halpern CT. Reproductive health of young adults with physical disabilities in the U.S. *Prev Med* 2010;51:502–504.
8. Kim D, Saada A. The social determinants of infant mortality and birth outcomes in Western developed nations: A cross-country systematic review. *Int J Environ Res Public Health* 2013;10:2296–2335.
9. Kramer MR, Hogue CR. What causes racial disparities in very preterm birth? A biosocial perspective. *Epidemiol Rev* 2009;31:84–98.
10. Mitra M, Long-Bellil LM, Smeltzer SC, Iezzoni LI. A perinatal health framework for women with physical disabilities. *Disabil Health J* 2015;8:499–506.
11. Iezzoni LI, Yu J, Wint AJ, Smeltzer SC, Ecker JL. Prevalence of current pregnancy among US women with and without chronic physical disabilities. *Med Care* 2013;51:555–562.
12. Mitra M, Clements KM, Zhang J, Iezzoni LI, Smeltzer SC, Long-Bellil LM. Maternal characteristics, pregnancy complications, and adverse birth outcomes among women with disabilities. *Med Care* 2015;53:1027–1032.
13. Signore C, Spong CY, Krotoski D, Shinowara NL, Blackwell SC. Pregnancy in women with physical disabilities. *Obstet Gynecol* 2011;117:935–947.
14. Clements KM, Mitra M, Zhang J, Iezzoni LI. Pregnancy characteristics and outcomes among women at risk for disability from health conditions identified in medical claims. *Womens Health Issues* 2016;26:504–510.
15. Mitra M, Long-Bellil LM, Iezzoni LI, Smeltzer SC, Smith LD. Pregnancy among women with physical disabilities: Unmet needs and recommendations on navigating pregnancy. *Disabil Health J* 2016;9:457–463.
16. Moos M-K. Prenatal care: Limitations and opportunities. *J Obstet Gynecol Neonatal Nurs* 2006;35:278–285.
17. Blackford KA, Richardson H, Grieve S. Prenatal education for mothers with disabilities. *J Adv Nurs* 2000;32:898–904.
18. Kroll T, Jones GC, Kehn M, Neri MT. Barriers and strategies affecting the utilisation of primary preventive services for people with physical disabilities: A qualitative inquiry. *Health Soc Care Community* 2006;14:284–293.
19. Tarasoff LA. Experiences of women with physical disabilities during the perinatal period: A review of the literature and recommendations to improve care. *Health Care Women Int* 2013;36:88–107.
20. Robey KL, Minihan PM, Long-Bellil LM, Hahn JE, Reiss JG, Eddey GE. Teaching health care students about disability within a cultural competency context. *Disabil Health J* 2013;6:271–279.
21. Smeltzer SC, Dolen MA, Robinson-Smith G, Zimmerman V. Integration of disability-related content in nursing curricula. *Nurs Educ Perspect* 2005;26:210–216.
22. Miller SR. Fostering informed empathy through patient-centred education about persons with disabilities. *Perspect Med Educ* 2015;4:196–199.
23. Kirschner K, Gill C, Panko Reis J, Hammond C. Health issues for women with disabilities. In: DeLisa JA, Gans BM, Walsh NE, eds. *Physical medicine and rehabilitation: Principles and practice*. Philadelphia, PA: Lippincott-Raven Publisher, 2005:1562–1582.
24. Walsh-Gallagher D, Sinclair M, Mc Conkey R. The ambiguity of disabled women's experiences of pregnancy, childbirth and motherhood: A phenomenological understanding. *Midwifery* 2012;28:156–162.
25. Libson JG. Pregnancy, birth, and disability: Women's health care experiences. *Health Care Women Int* 2000;21:11–26.
26. Eisenberg NW, Andreski S-R, Mona LR. Sexuality and physical disability: A disability-affirmative approach to assessment and intervention within health care. *Curr Sex Health Rep* 2015;7:19–29.
27. Milligan MS, Neufeldt AH. The myth of asexuality: A survey of social and empirical evidence. *Sex Disabil* 2001;19:91–109.
28. Prilleltensky O. A ramp to motherhood: The experiences of mothers with physical disabilities. *Sex Disabil* 2003;21:21–47.
29. Smeltzer SC, Mitra M, Iezzoni LI, Long-Bellil L, Smith LD. Perinatal experiences of women with physical disabilities and their recommendations for clinicians. *J Obstet Gynecol Neonatal Nurs* 2016;45:781–789.
30. Mitra M, Smith L, Smeltzer SC, Long-Bellil LM, Sammet Moring N, Iezzoni LI. Barriers to providing maternity care to women with physical disabilities: Perspectives from health care practitioners. *Disabil Health J* 2017;10:445–450.
31. StataCorp. *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP., 2015.
32. Lori JR, Yi CH, Martyn KK. Provider characteristics desired by African American women in prenatal care. *J Transcult Nurs* 2010;22:71–76.
33. Dahlberg U, Aune I. The woman's birth experience—The effect of interpersonal relationships and continuity of care. *Midwifery* 2013;29:407–415.
34. Galle A, Van Parys A, Roelens K, Keygnaert I. Expectations and satisfaction with antenatal care among pregnant women with a focus on vulnerable groups: A descriptive study in Ghent. *BMC Womens Health* 2015;15:112.
35. Christiaens W, Bracke P. Place of birth and satisfaction with childbirth in Belgium and the Netherlands. *Midwifery* 2009;25:e11–e19.
36. Dahlem CH, Villarruel AM, Ronis DL. African American women and prenatal care: Perceptions of patient-provider interaction. *West J Nurs Res* 2015;37:217–235.
37. O'Hearn A. Deaf women's experiences and satisfaction with prenatal care: A comparative study. *Fam Med* 2006;38:712–716.
38. Fishbein M, Ajzen I. *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press, Taylor & Francis, 2011.
39. Black LL, Johnson R, VanHoose L. The relationship between perceived racism/discrimination and health among

- Black American women: A review of the literature from 2003 to 2013. *J Racial Ethn Health Disparities* 2014;2: 11–20.
40. Salm Ward TC, Mazul M, Ngui EM, Bridgewater FD, Harley AE. “You learn to go last”: Perceptions of prenatal care experiences among African-American women with limited incomes. *Matern Child Health J* 2012;17:1753–1759.
 41. Wheatley RR, Kelley MA, Peacock N, Delgado J. Women’s narratives on quality in prenatal care: A multicultural perspective. *Qual Health Res* 2008;18:1586–1598.
 42. Nuru-Jeter A, Dominguez TP, Hammond WP, et al. “It’s the skin you’re in”: African-American women talk about their experiences of racism. An exploratory study to develop measures of racism for birth outcome studies. *Matern Child Health J* 2008;13:29–39.
 43. Thachuk A. Midwifery, informed choice, and reproductive autonomy: A relational approach. *Fem Psychol* 2007;17:39–56.
 44. Frederick A. Visibility, respectability, and disengagement: The everyday resistance of mothers with disabilities. *Soc Sci Med* 2017;181:131–138.
 45. Iezzoni LI, Wint AJ, Smeltzer SC, Ecker JL. Recommendations about pregnancy from women with mobility disability to their peers. *Womens Health Issues* 2017;27:75–82.

Address correspondence to:

Monika Mitra, PhD
The Lurie Institute for Disability Policy
The Heller School for Social Policy and Management
Brandeis University
415 South Street
Waltham, MA 02453

E-mail: mmitra@brandeis.edu