Published in final edited form as:

Field methods. 2011 October 9; 24(2): 135–154. doi:10.1177/1525822X11419819.

Willingness to Participate in Research during Pregnancy: Race, Experience, and Motivation

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Abstract

This paper examines the willingness of pregnant women to participate in research on health. We investigate attitudes toward multiple methods of data collection including survey and biomarker data collection. Complete interviews were obtained from a sample of 90 pregnant women in a matched control-comparison study of patients receiving prenatal care in private practice and clinic settings. Women experiencing prenatal care at a clinic reported less willingness to participate in research than women experiencing prenatal care at a private practice. Women who deemed “contributing to science”, “learning about pregnancy health”, and “helping future patients” as important motivations for participating in research were more likely to express willingness to participate in a study. African American women reported less willingness to answer questions in a survey compared to white women. The results suggest that motivational factors should be integrated into the design of a study of pregnant women to encourage participation.

Keywords

pregnancy; participation; social research; survey research

Introduction

This paper explores willingness to participate in research on health among a sample of pregnant women. The purpose of this research is to improve our understanding of the demographic characteristics and experiences associated with willingness to participate in research during pregnancy. This paper also advances our knowledge of how motivations explain associations between individual backgrounds and willingness to participate in research. Because the ability of any study to make accurate inferences to the population is dependent on the representativeness of its sample, this information is of utmost importance to help researchers design studies that maximize participation among pregnant women of all backgrounds.

Researchers have had difficulty achieving high participation rates in past studies of pregnant women, but research on pregnant women is essential for the advancement of science related

to women's pregnancy experience and children's lives after the birth. Large, national cohort studies of pregnant women have experienced difficulty achieving high participation rates. Studies in both Norway and Denmark demonstrate significantly lower response rates for pregnant women compared to other women (Jacobson et al. 2010; Magnus et al. 2006). Several smaller scale studies demonstrate similar results (CARE Study Group 2008; Daniels et al. 2006; Swensen et al. 2001; Ugwumadu et al. 2003). Though national studies in the U.S. rarely target pregnant women, the U.S. National Children's Study has exactly this design (Nechuta et al. 2009). Pilot work for this study indicates that achieving high participation rates may be difficult. Nechuta and colleagues (2009) assessed attitudes towards participating in data collection procedures planned for the National Children's Study among a sample of pregnant women and found only 60% willing to participate in an in-person interview, 57% infant examination, 56% maternal medical records, and 54% infant medical records¹. Reaching higher rates of participation is a high scientific priority for this study and others like it, because underrepresentation of key groups is likely to produce inferential errors and bias in all subsequent uses of the data.

There is a vast literature on the characteristics of underrepresented groups in research. Of great concern is the consistent underrepresentation of African Americans in health research (Braunstein et al. 2008; Dresser 1992; Mason 2005; Millon-Underwood et al. 1993; Murthy et al. 2004; Shavers et al. 2001; Smith and King 2009; Stone 2004). Previous research reveals that African Americans report lower willingness to be research subjects and higher fear of participation than whites (Hall 1999; Katz et al. 2005; Katz et al. 2006; Shavers et al. 2000, 2002). Previous research has also found a positive association between education and willingness to participate in research (Dillman 1978; Dunne et al. 1997; Krousel-Wood et al. 2001; O'Neil 1979; Pickery et al. 2001; Trauth et al. 2000). These studies, however, were limited to samples of non-pregnant people, and so it is not known if these characteristics predict willingness to participate in research among pregnant women. We also know little about how experiences with discrimination and health care providers during pregnancy may shape women's willingness to participate in research.

To advance what we know about willingness to participate in research during pregnancy we interviewed pregnant women presenting at obstetrical and gynecological offices located within a major health system in Detroit, Michigan. These interviews measured willingness to participate in research in general, willingness to participate in a hypothetical study of birth outcomes, and willingness to participate in individual components of the hypothetical birth outcomes study. This intensive patient-based study also measures key dimensions of individual background and experience, as well as motivations likely to link that background to willingness to participate in research.

Conceptual Framework

The conceptual framework guiding our study integrates concepts from the prototype-willingness models of behavioral choices with the life course theoretical perspective. The attitude-behavior literature is the foundation for models of willingness. Work on attitude-behavior links demonstrates that subjective states like attitudes and beliefs form a powerful guide to behavioral choices (Ajzen 1988). The theory of planned behavior identifies intentions as the key link between attitudes and beliefs and behavioral choices (Ajzen 1991), but the concept of willingness has been advanced as an alternative to intention for choices in which individuals must compare their intentions to perceptions of risk as risk varies across circumstances (Gibbons and Gerrard 1995). Because the decision to participate in research

¹Only a high level of willingness (83%) was reported for participation in a telephone interview (Nechuta et al. 2009)

while pregnant requires a circumstance specific evaluation of motivations compared to risks, we focus on the concept of willingness, rather than attitudes in general.

The life course theoretical perspective argues that experiences early in life influence both subjective states and behavioral choices later in life (Elder 1998). At the individual level, race is established at birth. We argue that race shapes all subsequent experiences and attitudes, including willingness. Following the life course perspective, we also argue that specific experiences that occur later in life, such as clinic visits or discrimination, are shaped at least in part by race, and together with race shape subsequent attitudes, such as motivations and willingness to participate in research. So, our conceptual framework identifies the willingness to participate as a key subject of study, race and subsequent experiences as potential influences on willingness, and motivations as a potential mechanism connecting race and experiences to willingness. This conceptual order organizes our hypotheses, research design, measures and statistical analysis.

Hypotheses

Building from this conceptual foundation, we construct several specific hypotheses describing influences on willingness to participate in research during pregnancy.

Race

Prior research has shown African Americans have greater distrust toward research, and it has been suggested that this distrust may explain their lower participation rates in research (Corbie-Smith et al. 2002; Rajakumar et al. 2009). Thus, we expect pregnant African American women will report being less willing to participate in research in general than pregnant white women (Hypothesis 1). However, because survey methodologists have found the saliency of the study topic to be important in a respondent's decision to participate (Groves et al. 2000), we expect *no race difference* among pregnant women in willingness to participate in research to study poor birth outcomes – a topic likely to be salient among most pregnant women regardless of race.

In a recent study, Bussey-Jones and colleagues found African Americans were less willing than whites to provide blood samples for genetic research (Bussey-Jones et al. 2010). Also, past research has found African Americans report more fear of participation in research than whites (Katz et al. 2006). Thus, we expect African Americans will report less willingness than whites when asked about participation in the specific components of a hypothetical birth outcomes study including providing biological samples and answering questions in a survey (Hypothesis 2).

Clinical Setting

Compared to patients at private practices, patients at clinics may feel more vulnerable to inappropriate research risks or less protected from research risks. We expect respondents who receive prenatal care at a clinic to report less willingness to participate in all the types of research we measured compared to respondents who receive prenatal care at a private practice (Hypothesis 3). Of course, because clinic patients are disproportionately drawn from the low-income population, resource limitations may produce these same reactions. Education is well-known to be the strongest single predictor of economic resources (Mincer 1974; Mincer and Polachek 1974). Therefore, it is essential to control for education in multivariate models designed to evaluate the independent effect of receiving prenatal care at a clinic.

Independent of socio-economic background, we expect patients in clinic settings to feel more vulnerable to research risks for several reasons. First, other clinic patients are on

average poor, which creates a social context of higher vulnerability. Second, less well-funded clinics have higher staff turnover and poorer maintained facilities. Third, poor research outcomes historically were associated with medical care from services targeted at low income patients. Thus research on the willingness of pregnant women to participate in a study of birth outcomes should directly consider these setting differences. Therefore, we give special attention to this.

Discrimination

Like patients at clinics, people who experience discrimination may also feel more vulnerable to research risks. These experiences may exacerbate distrust of the research community and create a lack of confidence in researchers to minimize the risks associated with participation in research (McCarthy 1994). Respondents with discrimination experiences may also expect to bear more risks than others if they agree to participate. Thus, we expect respondents who report experiences with racial/ethnic discrimination to report less willingness to participate in research in general and research to learn about birth outcomes specifically (Hypothesis 4).

Motivations

Motivations are another element key to understanding pregnant women's willingness to participate in research. It is important to understand what motivates people to participate in research so those motivations can be incorporated in the design of a study to maximize participation. Motivation can stem from the participants' belief in the importance of the topic being studied (Groves et al. 2000). Contributing to science, learning about health, and helping future patients are other motivations found to contribute to willingness to participate in studies (Daniels et al. 2006; Lamvu et al. 2005). Research also demonstrates that incentives are an effective tool for motivating participation (Groves and Couper 1998; Groves et al. 2004).

Studies have found specific motivations to be important in the decision of pregnant women to participate in research. In pilot work for the National Children's Study, Nechuta et al. (2009) found increased willingness to participate in research during pregnancy when money was offered. Daniels and colleagues (2006) found in a study of recent participants in the Pregnancy, Infection, and Nutrition (PIN) Study that contributing to science, learning about pregnancy, obtaining free ultrasounds, and earning money were important reasons cited by respondents for participating in the study. They also found women with lower levels of education were more likely to be motivated by learning about pregnancy health and women with higher levels of education were more likely to be motivated by receiving free ultrasounds (Daniels et al. 2006). Lamvu et al. (2005) found a race difference in similar motivation items they administered in a survey of Right From The Start study participants. African American women were more likely than white women to report learning about pregnancy as the main reason they participated in the study and were also less likely to choose contributing to science as a motivation than white women.

We also expect these motivators will predict willingness to participate in research in general and research to learn about birth outcomes specifically (Hypothesis 5). Background and experiences shape motivations (Ajzen 1988) and will explain some of the observed associations between background characteristics such as race or experiences such as clinic use on willingness to participate in research.

Methods

In March 2007, outpatients presenting at obstetrical and gynecological offices located within a major health system in Detroit, Michigan were approached for consent to participate in a

survey interview. Within the health system, an equal number of participants were recruited from private practices with a large population of privately insured patients and a clinic with a large population of Medicaid insured patients. Participants were recruited during both general OB/GYN and high risk pregnancy sessions of the private offices and clinic. Women who were at least 18 years of age and currently pregnant were eligible to participate in the study. In all, 90 of the 101 women approached and determined eligible agreed to participate in the study and completed the survey interview. The informed consent process and survey interview took approximately 15 minutes to complete, and each respondent received \$20 for their time. Overall, we achieved high participation rates in both the clinic and private practices through our high incentive/low burden design even though the consent process was long and involved by survey research standards. The cooperation rate for the clinic was 89.4% and the cooperation rate for the private practices was 94.7%. These rates were calculated using the American Association for Public Opinion Research (AAPOR) Cooperation Rate 2 calculation (AAPOR 2009).

Measures

Willingness to participate in research—Respondents were asked: “First, I would like to know what you think about clinical research studies in general. On a scale of 1 to 10, with 1 being not willing at all and 10 being very willing, how willing would you be to participate in a clinical research study?” Willingness to participate in research in general is included as a continuous measure ranging from 1 to 10.

An additional set of questions obtained respondents' willingness to participate in a hypothetical study which interviewers described in greater detail. The interviewers read a description of a hypothetical study plan which included recruiting pregnant women to: 1) participate in a survey interview; 2) provide biological specimens during pregnancy and at delivery; and 3) obtain information regarding the outcome of the pregnancy including the weight and the gestational age of the child(ren) at the time of birth. Interviewers explained that this information collected from hundreds of women would help researchers better understand the causes of poor birth outcomes such as preterm births and low birth weight.

Now I would like to tell you about the research study we are planning. We plan to ask pregnant women to answer questions in a survey and provide biological samples such as urine. At delivery we would obtain samples from the women again and note how much their babies weigh and whether or not their babies were born on time. Obtaining this information from hundreds of women will help us better understand the causes of poor birth outcomes such as premature births and low birth weight. The results may also find things women and doctors can do to deliver healthier babies in the future.

Next, respondents were asked: “On a scale of 1 to 10, with 1 being not willing at all and 10 being very willing, how willing would you be to participate in a clinical research study like the one we are planning?” This led to a series of questions assessing willingness to participate in each of the individual components of the hypothetical study using the same response option scale of 1 to 10. Willingness to answer questions in a survey to providing samples of urine, saliva, blood, and the placenta and umbilical cord were assessed. Willingness to participate in research to study poor birth outcomes and in a survey are included as continuous measures ranging from 1 to 10. We created an averaged index ranging from 1 to 10 to capture willingness toward providing biospecimens. The index is composed of the five biosample measures listed above.

Race—Respondents were asked to select one or more groups (American Indian or Alaskan Native; Asian; Native Hawaiian or other Pacific Islander; Black or African American;

white), which describe their racial background. Race is coded as a dichotomous indicator for African American versus white. Because only 3 of the 90 women reported being of a racial category other than African American or white, these cases were dropped from the analyses presented in this paper.

Experiences with prenatal care at a clinic—The interviews were conducted in the waiting rooms of a clinic and private practice offices. The location of the interview was used to determine whether the respondent received prenatal care at a clinic or private practice. Experience with prenatal care at a clinic is included as a dichotomous indicator for receiving care at a clinic versus a private practice.

Experiences with discrimination—Respondents were asked a series of questions about experiences they have had with discrimination during their pregnancy in the following situations: 1) when you were at work; 2) when you saw a doctor, nurse, or other health provider; and 3) when you wanted service – for example buying something at a store or at a restaurant. Response options were “yes, no, not sure.” Similar measures were used by Collins and colleagues (2004) to measure racial discrimination experienced by women during pregnancy in a study of poor birth outcomes. Discrimination is coded as a dichotomous indicator for ever experiencing racial/ethnic discrimination during pregnancy in any of the situations described. Responses of “not sure” were treated as “no” responses.

Motivations to participate in research—The importance of various motivations for participation in the study was also assessed on a scale of 1 to 10, with 1 being not important at all and 10 being very important. Because the salience of a study topic has been linked to motivation to participate in a study (Groves et al. 2000), respondents were asked: “On a scale of 1 to 10, how important is the topic of the study to you personally?” Importance of the study topic is included as a continuous measure ranging from 1 to 10. Respondents were also asked how important the following reasons would be in their decision to participate in a study like the one described: 1) contributing to general science and health information; 2) learning more about pregnancy health; 3) getting a free medical test such as an extra free ultrasound; 4) getting paid money; and 5) wanting to help future patients. We created two averaged indices, each ranging from 1 to 10, to capture the philanthropic motivations (science/learn/help) and the financial motivations (money/free test).

Controls—Respondents answered demographic questions about completed years of education (0 to 19+) and age (in years). Education is a dichotomous measure indicating whether the respondent has a 12th grade education or less. This measure also serves as an indicator of poverty because education is the strongest long term predictor of economic resources (Mincer 1974; Mincer and Polachek 1974). Age is coded in years and ranges from 18 to 44.

Analysis

A series of multiple regression analyses were employed to test the independent effects of race, poverty (education), age, experiences with prenatal care at a clinic, experiences with discrimination, and motivations on willingness to participate in research (Fox 1997; McClendon 2002). Regression analyses without variable transformation were conducted because these models are extremely robust to the violation of the assumption of normally distributed variables and are straightforward to interpret (Hanushek and Jackson 1977). Descriptive statistics of the variables used in these analyses are provided in Table 1.

Results

Table 2 presents the results of the multivariate models. We use a hierarchical modeling strategy beginning with race and the control measures. Next, we add the measures of experiences with a clinic and discrimination. Lastly, we add the measures of motivations to the models. Thus, the second model is nested within the first and the third model is nested within the second. This strategy enables us to examine if later experiences and motivations explain some of the associations between characteristics such as race and willingness to participate in research.

Table 2 presents models of two different forms of willingness to participate in research, willingness to participate in research in general (the left half of Table 4) and the willingness to answer questions in a survey to study poor birth outcomes (the right half of Table 4). In column 1 we present a base model estimate of the independent effects of race, poverty (education), and age on willingness to participate in research in general. None of these measures independently predict willingness to participate in research in general. This result is inconsistent with the hypothesis that pregnant African American women will report being less willing to participate in research in general than pregnant white women (Hypothesis 1). In column 2 we add experiences with prenatal care at a clinic (versus private practice) and discrimination to the model. The only factor that independently predicts willingness to participate in research is receiving prenatal care at a clinic, with women receiving care at a clinic significantly less willing to participate in research in general than women receiving care at a private practice. This result is consistent with the hypothesis that women receiving prenatal care from clinics may perceive more exposure to or less protection from research risks relative to women receiving prenatal care from private providers (Hypothesis 3). We expected respondents who report experiences with racial/ethnic discrimination to report less willingness to participate in research in general (Hypothesis 4). The results of this analysis suggest that this is not the case.

In column 3, measures of the various motivations to participate in research are added to the model. First, we find high motivation to participate in research increases willingness to participate in research. The results in column 3 reveal that the scientific, learning, and helping dimension of motivation has a significant positive association with willingness to participate in research in general. That is, individuals with greater scientific, learning and helping motivation are also more willing to participate. This result is consistent with the hypothesis that motivators will predict willingness to participate in research in general (Hypothesis 5). High motivations because of the importance of the study or the incentives do not produce the same association.

Second, the comparison of this model to the model in column 2 provides an opportunity to assess the extent to which the consequences of experience with a clinic compared to a private practice are independent of individual motivations to participate in research. The comparison of the effects of experience with a clinic in column 2 to column 3 reveals that approximately 16% of the effect of experience with a clinic compared to a private practice is not independent of the scientific, learning, and helping dimension of motivation. Individual variations in the motivation to participate in research explain part of the relationship between the prenatal care site and willingness to participate in research in general. These results are consistent with the possibility that experience receiving prenatal care at a clinic reduces the scientific, learning, and helping dimension of motivation to participate in research, which ultimately reduces willingness to participate in research in general.

We find a very similar set of results in the analysis of willingness to participate in research on the causes of poor birth outcomes in particular as well as willingness to provide

biospecimens for such a study. For parsimony we do not present these models in Table 2. Models of willingness to participate in survey interviews, however, demonstrate important differences and so these results are displayed. In column 4 is a base model estimate of the independent effects of race, poverty (education), and age on willingness to participate in a survey interview. We find African American women report being significantly less willing to participate in survey interview based research than white women.² This result is consistent with the hypothesis that African Americans will report less willingness than whites when asked about participation in the specific components of a hypothetical birth outcomes study including answering questions in a survey (Hypothesis 2).³

In column 5, we add experiences to the model. We find experience with a clinic compared to a private practice does *not* predict pregnant women's willingness to participate in survey research. This result is inconsistent with our expectations (Hypothesis 3), but is consistent with the high response rates this study obtained from both clinic and private practice settings in which survey interviews were conducted. We find experience of discrimination during pregnancy *increases* willingness to participate in a survey, which is opposite the hypothesized direction (Hypothesis 4).⁴ In column 6 we add motivations to the model and find the scientific, learning, and helping dimension of motivation has a statistically significant effect on willingness to participate in a survey. This result is consistent with our expectations (Hypothesis 5), however, it does *not* explain the important race difference in pregnant women's willingness to participate in survey research. Also important, this race difference is *not* apparent in key comparisons to survey research more generally. So, for example, the U.S. National Survey of Family Growth (NSFG), which interviews women about pregnancy and reproductive health, actually obtains higher response rates among young African American women than for similar white or Hispanic women (Groves et al. 2005). This important race difference in willingness to participate in survey research appears to be specific to research on pregnant women – a key result pointing toward an important difference in the need to motivate pregnant women to participate in various types of research.

Finally, even though willingness to participate in survey research is different, motivations to participate in research that revolve around the scientific, learning, and helping others dimension has a strong positive influence on willingness to participate in survey research. This result is reproduced for every dimension of willingness to participate in research we examine. Clearly these are key dimensions of motivation to participate in research among pregnant women. This result provides strong guidance to scientists hoping to recruit pregnant women into all forms of research. Such recruitment efforts will be most productive if the scientific, learning, and helping aspects of the research are emphasized during the recruitment process. The consequences among pregnant women are likely to be particularly strong.

Discussion

Despite the underrepresentation of minority populations in research, we found no racial differences in willingness to participate in research in general and to provide biospecimens among pregnant women. As expected, no race difference was found in willingness to participate in research to study poor birth outcomes – a topic likely to be salient among most pregnant women regardless of race. However, also as expected, being African American is

²This coefficient is the average of the effects of race we find among clinic and private practice patients. Both effects are in the same direction with a stronger effect found among the private practice patients compared to the clinic patients.

³We failed to find evidence that African Americans report less willingness than whites to provide biospecimens (Hypothesis 2).

⁴This result may indicate those who have experienced discrimination desire an opportunity to report that experience. Further research will be needed to investigate this unexpected result.

associated with reporting *less willingness* to answer questions in a survey. Because most research on pregnant women includes a survey data collection, this important race difference has the potential to create substantial race differences in the extent to which studies of pregnant women accurately represent the general population.

A strong theme in our findings is the negative association between receiving prenatal care at a clinic compared to a private practice and willingness to participate in research. In the specific setting for the study we report, patients of the clinic were not assigned to a specific doctor for their prenatal care. This, along with other differences between the clinic and the private practices, may affect the quality of the relationship patients are able to establish with their health care provider. It is possible that the better the relationship between the patient and the provider, the more willing a patient would be to participate in research. This may be particularly true if the relationship between patient and specific provider is part of perceived protection from research risks. This topic deserves more study, especially given the breadth of this important result across types of research.

Of course, all empirical research is characterized by limitations, and those limitations should shape our interpretation of the empirical results. The pregnant women who participated in this study overwhelmingly assigned great importance to studying the topic of poor birth outcomes and were highly motivated by the factors of contributing to science, learning about pregnancy health, and helping future patients. It is important to keep in mind that this study measured willingness to participate in a hypothetical study of birth outcomes. It is possible that willingness may have been reduced if we had provided women the opportunity to participate in a real study of birth outcomes. In addition, women may have assigned higher importance to the altruistic motivations because such responses are socially desired. Also, respondents may have reported a lower level of willingness if we had provided them a detailed description of what participation in research in general may entail.

Other limitations also shape our understanding of these results. Because of the relatively small size of this study, failure to find statistically significant associations cannot be assumed to represent null relationships. Likewise, this sample was limited to outpatients presenting at obstetrical and gynecological offices located within a major health system in Detroit, Michigan. These design features may be responsible for findings that did not match our hypotheses. For example, we expected respondents who report experiences with racial/ethnic discrimination – an experience that may cause or exacerbate distrust of the research community – to report less willingness to participate in research. Future studies of large scale and broader scope may find this expected association. Because all measures include error and because those measurement errors vary across measures, readers should avoid reaching strong conclusions regarding comparisons across factors in each model. For example, we find motivations related to advancing science, learning, and helping others to be a stronger influence on willingness to participate than motivations tied to monetary or service incentives, but different measures of these motivations could produce a different pattern of results. Finally, because all models are limited by the factors they omit, it is possible that additional measures could produce a different pattern of results. For example, this study does not include measures of gestational age, which could be associated with the experience of discrimination. Consequently, these limitations should serve to motivate new research given the substantial and important associations we document in spite of them.

Overall, the results of this study suggest that there are several factors that researchers should keep in mind to encourage participation in a study of pregnant women. First, thoroughly explain the study topic and its importance to the health of women and children. Second, emphasize the important contribution to science that each woman provides by participating in the study and how the results of the research will be used to help others. Comprehensive

interviewer training is likely the best way to ensure this information is effectively communicated to the respondent. Interviewers should be trained to emphasize these points to potential respondents early during the recruitment process. We also recommend providing interviewers with tools to help them better convey the importance of the study such as pamphlets or videos they can share with participants. Third, emphasize that the study provides an opportunity to learn about pregnancy health and build learning related incentives into the study design. For example, offering participants free classes on pregnancy health would likely increase motivation. Fourth, be aware that depending on the setting and demographics of the patient population, some women will be more or less likely to participate in various components of the research. If possible, create study designs so that unwillingness to participate in one component of the study does not prevent potential respondents from being able to participate in the other components of the study. Including these key design features will likely encourage the participation of pregnant women.

Acknowledgments

The authors would like to thank the following people for their assistance with the study: Julie de Jong, Sasha Achen Killewald, Cynthia Link, Jennifer Eckerman Yarger, and the staff of the clinic and private practices where participant recruitment occurred. We would also like to thank Jennifer Eckerman Yarger for her comments on the manuscript. Any errors or omissions are the responsibility of the authors. Financial support for this study was provided by the National Institutes of Health Roadmap Initiative grant 1 P20 RR020682-01.

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Table 1
Means and Standard Deviations of Measures Used in Analyses (N=87)

Characteristics	Mean or Percentage	Std. Dev.	Minimum	Maximum
Willingness to participate				
Research in general	6.67	2.37	1.00	10.00
Research to study poor birth outcomes	7.41	2.61	1.00	10.00
Survey	9.00	1.70	2.00	10.00
Biospecimens	7.55	2.62	1.00	10.00
Race				
African American	.54		.00	1.00
Motivations				
Importance of study topic	9.55	.95	5.00	10.00
Science/learn/help	9.01	1.23	4.33	10.00
Money/free test	6.59	2.74	1.00	10.00
Experiences				
Clinic	.47		.00	1.00
Discrimination during pregnancy	.22		.00	1.00
Controls				
Poverty (<= High school education)	.47		.00	1.00
Age in years	28.11	6.20	18.00	44.00

Table 2
OLS regression estimates of willingness to participate in research (standard errors in parentheses)

Characteristics	Research in general			Survey		
Race						
African American	.14 (.55)	.66 (.64)	.61 (.61)	-.98** (.38)	-1.12** (.44)	-1.17*** (.40)
Motivations						
Importance of study topic			.13 (.33)			.24 (.21)
Science/learn/help			.64** (.25)			.46*** (.16)
Money/free test			.00 (.10)			.03 (.06)
Experiences						
Clinic		-1.04* (.62)	-.87 ⁺ (.60)		-.24 (.42)	-.12 (.39)
Discrimination during pregnancy		-.25 (.69)	-.18 (.66)		1.12 (.46)	1.12 (.43)
Controls						
Poverty (<= High school education)	-.01 (.53)	.06 (.53)	-.14 (.52)	.28 (.37)	.26 (.36)	.08 (.34)
Age in years	.03 (.04)	.01 (.05)	.01 (.04)	-.01 (.03)	-.00 (.03)	-.01 (.03)
N	87	87	87	87	87	87
Adjusted R ²	-.03	-.02	.09	.04	.10	.26

⁺ p < .10;

* p < .05;

** p < .01;

*** p < .001 (one-tailed tests)