

Women's Perceptions of Access to Prenatal Care in the United States: A Literature Review

Julia C. Phillippi, CNM, MSN

Women report many barriers to accessing prenatal care. This article reviews the literature from 1990 to the present on women's perceptions of access to prenatal care within the United States. Barriers can be classified into societal, maternal, and structural dimensions. Women may not be motivated to seek care, especially for unintended pregnancies. Societal and maternal reasons cited for poor motivation include a fear of medical procedures or disclosing the pregnancy to others, depression, and a belief that prenatal care is unnecessary. Structural barriers include long wait times, the location and hours of the clinic, language and attitude of the clinic staff and provider, the cost of services, and a lack of child-friendly facilities. Knowledge of women's views of access can help in development of policies to decrease barriers. Structural barriers could be reduced through changes in clinic policy and prenatal care format, and the creation of child-friendly waiting and examination rooms. Maternal and societal barriers can be addressed through community education. A focus in future research on facilitators of access can assist in creating open pathways to perinatal care for all women. *J Midwifery Womens Health* 2009;54:219–225 © 2009 by the American College of Nurse-Midwives.

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INTRODUCTION

“The aim of antenatal care is to assist women to remain healthy, finding and correcting adverse conditions when present, and thus aid the health of the unborn. Antenatal care should also provide guidance to the woman and her partner or family, to help them in their transition to parenthood.”¹

Disparities in access to prenatal care and prenatal care use contribute to the inequalities in health outcomes between ethnic, racial, and socioeconomic groups.² For example, the Centers for Disease Control and Prevention (CDC) analysis of death certificate data revealed that in 2005, African American women were 3.3 times more likely to die as a result of pregnancy complications than white women,³ and half of those deaths were preventable.² The World Health Organization (WHO) and the CDC state that all women should have access to and use prenatal care, and they emphasize the value of early care.^{2,4}

However, in 2005, up to 29.8% of pregnant women in the United States did not begin prenatal care in the first trimester of pregnancy.⁵ Poor access to and use of health services may contribute to the health disparities between racial, ethnic, and socioeconomic groups within the United States and needs further exploration.² Most women who do not receive early and adequate prenatal care are in a demographic category that is associated with increased risk for poor pregnancy outcomes (Table 1).^{6–10}

Research on the use of prenatal care usually examines the association between the number and timing of prenatal visits and demographic factors, such as age,^{7,11} education,^{6,7} race,^{6,12,13} socioeconomic status,¹⁴ insurance status,¹⁵ or geographic location of the woman¹⁰ or provider.¹⁶ While utilization data can examine when women entered care and if they attended visits regularly once they began care, these studies do not assess the quality or the content of prenatal care,¹⁷ nor do they explain why women fail to use the services available to them.^{18–21} The lack of entry into available services prevents use from being synonymous with access.

Many studies report that risk factors for poor prenatal care use are interrelated and act in concert. For example, women with low educational levels may not be able to obtain well-paying jobs with time off for health care visits. Women with low incomes may live in neighborhoods far from health care providers or public transportation.¹⁰ It is difficult to determine which of these factors exert the greatest effect on women or how they interrelate unless the women themselves are asked. Utilization data cannot reveal the woman's lived experience of accessing care, such as personal barriers, long wait times for appointments, or other reasons they do not begin or maintain care.

This literature review explores women's perceptions of access to prenatal care within the United States based on studies published since 1990. An overview of the literature on access to prenatal care is provided to enhance clinicians' understanding of the access process, especially women's views of access to prenatal care. Surveys of women explain the reasons for women's utilization patterns and can allow practitioners and institutions to address barriers to improve both access to care and maternal satisfaction with prenatal care.

Address correspondence to Julia C. Phillippi, CNM, MSN, Vanderbilt University School of Nursing, 345 First Hall, 461 21st Ave. S., Nashville, TN 37240. E-mail: julia.c.phillippi@vanderbilt.edu

DEFINITION OF PRENATAL CARE

Prenatal care, also known as antenatal care, has many formats and many types of providers. In this article, the WHO definition of prenatal care, as quoted above, will be used. The WHO definition is consistent with CDC's prenatal care definition.²²

The format and content of prenatal care are current topics of debate, and contemporary practice is often not evidence-based. All references to prenatal care within this article refer to the traditional prenatal care regimen of a few visits in early gestation and an increasing frequency of visits as pregnancy progresses. A reduced visit schedule for low-risk women has been shown to be effective but has not been widely implemented.²³ Centering-Pregnancy, also known as group prenatal care, is another alternative prenatal care format shown to have positive maternal–infant outcomes.²⁴ While the format of prenatal care affects a woman's access and ability to maintain care, there is little, if any, current research on this topic. The content of prenatal care ranges from medical-only assessment to assessment coupled with education and ancillary services, such as dental care, smoking cessation, and nutritional counseling.^{23,25} Because the focus of this article is on women's experience of access to prenatal care, content of care will be explored only as mentioned in the literature on access.

Definition of Access to Prenatal Care

Prenatal care access is defined as the potential ability of a woman to enter prenatal care services and maintain care for herself and fetus during the perinatal period. This definition was developed through a concept analysis of prenatal care access involving current literature on access to health care, women's access to health care, and prenatal care access.

EFFECTIVENESS OF PRENATAL CARE

There have been several approaches to examining the effectiveness of prenatal care. It is difficult to quantify the value of prenatal care in improving maternal and neonatal outcomes because of a large number of confounding influences. Many studies have examined the value of individual procedures or interventions on maternal and neonatal outcomes. These studies have substantiated the benefit of certain interventions, such as smoking cessation counseling,²⁶ without validating the overall experience of prenatal care.

Julia C. Phillippi, CNM, MSN, is a lecturer at Vanderbilt University School of Nursing in Nashville, TN, and a PhD student at the University of Tennessee, Knoxville, TN. She practices on a locum tenens basis with the Women's Wellness & Maternity Center and Lisa Ross Birth & Women's Center in East Tennessee.

Table 1. Factors Associated With Late or Inadequate Prenatal Care Use

Low education level ⁶
Age <20 yrs ⁷
Age >35 yrs ⁷
Multiparity ⁷
African American race ^{6,8}
Hispanic ethnicity ^{6,8}
Residence in an area with few prenatal care providers (inner city or rural) ^{9,10}

Another approach to studying the effectiveness of prenatal care pairs use of care with maternal–fetal outcomes, determining if women with specific amounts of prenatal care have better perinatal outcomes. Several indices of prenatal care “adequacy” have been developed, tested, and revised based on this methodology. The four major indexes currently in use differ markedly in their categorization of the adequacy of care, but all are based on the beginning, timing, and number of prenatal visits.²⁷

No current index includes the content of the visits or accounts for a reduced visit schedule of care.²⁷ The content of visits may be more important than the overall number of encounters and can greatly affect the effectiveness of care.^{23,27,28} Alexander and Kotelchuck,¹⁷ prominent researchers on prenatal care adequacy, have called for a more uniform and comprehensive approach to determining the adequacy of prenatal care, which includes the number and timing of visits, content, provider, setting, and quality.¹⁷ Because this article focuses on women's perspective of access, and because the concept of adequacy is not clearly defined within the literature, adequacy will only be discussed within the context of maternal report or as a general measure of the use of prenatal services.

What constitutes positive perinatal outcomes is also controversial. Much of the recent research has focused on reducing the incidence of low birth weight infants and preterm births. However, while prenatal care may not decrease the rate of preterm birth, it may allow for the preparation for a preterm birth including transfer to an appropriate level facility and administration of corticosteroids to promote lung maturity, resulting in lower rates of neonatal mortality.¹⁷ Early prenatal care may also reduce rates of infant death and long-term disability through prenatal diagnosis of fetal anomalies.²⁹ Kennedy³⁰ has questioned whether research should study the rate of negative outcomes or, instead, determine if perinatal care increases the rate of optimal, or ideal, outcomes.

Comprehensive prenatal care may impact health behaviors, such as exercise, healthy eating, and weight control, whose effects might be difficult to assess in the short-term.³¹ Kotelchuck³² has called for the greater inclusion of mother's voices in future research in order to reveal links between maternal experiences or behaviors and health outcomes. While there are many problems with the current literature on the effectiveness of prenatal care, all major health organizations, including the WHO

and the CDC, support open access to prenatal care as an essential component in improving maternal and infant outcomes; therefore, it is important to hear the voices of women and learn what barriers they face in accessing these services.^{2,4}

METHODS

Galvan's³³ method was used to frame the topic and perform the literature review. The CINAHL and PubMed databases were searched using the keywords "prenatal care," "antenatal care," and "access." Because of the differences in health care systems across countries, only research from the United States was included in the review. Initially, sources published after the year 2000 were analyzed. Analysis included a review of methods for transparency and adequacy as discussed by Pyrczak.³⁴ Literature and studies surveying women about their experiences of access were sorted from studies that drew conclusions about access from prenatal care use data.

The initial review of sources published after 2000 included 19 articles, only six of which surveyed women directly. Because prenatal care has not undergone substantive changes since 1990, the search was expanded to include references and articles published after 1990. A total of 42 relevant articles were found. Nineteen studies included direct surveys of women, through either qualitative or quantitative means.

The goal was to include all current literature directly surveying women on their experiences of access to prenatal care. Articles were eliminated if they used data collected before 1985. Three studies were eliminated because they drew conclusions about access through secondary analysis of data collected on other topics, resulting in questionable validity.

All selected articles were entered into a literature table, including methods, sample, and results, as specified by Galvan.³³ The identified studies used a variety of qualitative, quantitative, and mixed method techniques to survey women, including focus groups, personal interviews, surveys with open-ended responses, and surveys with forced-choice responses, such as a Likert-scale design. Focus groups provided the richest and most novel information for this review, and forced-choice questions served to confirm previous research findings. While many studies had limited samples—for instance, homeless women in Florida³⁵ or middle-class women in one Minnesota county³⁶—the women's comments are often very similar, suggesting a transferability of study findings.

The literature classified women's comments predominately into categories of barriers and motivators. All barriers and motivators mentioned in more than one study were included in the results to provide a comprehensive list of women's reports of prenatal care access. Results found in only one study were eliminated because they were assumed to be specific to the subpopulation sur-

veyed. Barriers and motivators were not ranked by frequency, because studies with open-ended questions, allowing for novel findings, had smaller samples than studies with closed-ended questions. Because the findings of the studies were consolidated, categories of barriers emerged. Barriers can be further classified into societal, maternal, structural, and medical subcategories. Motivators were less frequently mentioned by women and were organized into the categories established for barriers.

RESULTS

Four studies used solely qualitative methodologies. Milligan et al.³⁷ and Daniels et al.³⁸ used focus groups to identify perceptions of access to prenatal care. The focus group researchers asked open-ended questions, with prompts, to identify motivators and barriers along with exploring the value of prenatal care.^{37,38} Shaffer³⁹ and Patterson et al.⁴⁰ used interviews featuring only open-ended questions. Shaffer³⁹ queried women about persons or factors that affected their attendance at prenatal care or were barriers to obtaining care. Patterson et al.⁴⁰ used a grounded theory methodology and did not have predetermined questions or prompts.

Five studies had a mixed method approach with a variety of open- and closed-ended questions in structured interviews,^{20,21,41} paper surveys,³⁶ or a combination of structured interviews and questionnaires.⁴² Teagle and Brindis²⁰ and Lia-Hoagberg et al.²¹ used open-ended questions to interview women about their experience accessing health and prenatal care and their beliefs about and motivation for prenatal care. These authors used closed-ended questions to provide clarification. Mikhail⁴² performed prompted interviews asking about the woman's beliefs and experiences accessing care, followed by a questionnaire on barriers to care that included closed-ended questions. The Roberts et al.³⁶ survey had Likert-scale questions about access, barriers to care, and beliefs about the value of prenatal care interspersed with open-ended questions asking if the woman would like to add any other responses or comments.

Six studies were quantitative, using questionnaires with Likert-scale questions,^{35,43,44} multiple-choice options on surveys,^{19,45} or forced-choice questions in interviews.⁴⁶ The questions in quantitative studies explored barriers and motivators identified in previous literature. One study did not clearly state the type of interview questions.¹⁸

Nine studies used convenience sampling to obtain participants,^{19,20,35,38,39,42-45} and seven studies used some form of purposive sampling to ensure that a diversity of women were represented.^{18,21,36,37,40,41,46} Sample sizes ranged from 14⁴⁰ to 3071⁴⁷ (median, 176). Two studies included participants who were beyond childbearing age.^{20,37} Teagle and Brindis²⁰ included providers of prenatal care, and Milligan et al.³⁷ conducted focus groups of community members and male partners and childbearing

Table 2. Common Maternal Barriers to Prenatal Care Access

Transportation ^{40,41,43}
Poor motivation to obtain care
Unaware of pregnancy ^{18,19,21}
Considering abortion ^{40,45,46}
Depression ^{20,21,38}
Hiding pregnancy ^{18,20,45}
Belief prenatal care is unnecessary ^{18,19,39,40,42,45}
Fear of medical procedures ^{19,20,42,43}
Finances/money ^{20,39,40,44}
Needs of existing children ^{21,35,36,42}

women.³⁷ Only results from pregnant, postpartum, or women of childbearing age were included in the review.

All literature included in the analysis surveyed women only one time; researchers did not examine changes in perceived access across the perinatal period. Three studies recruited women at their first prenatal visit.^{19,36,43} Five studies surveyed women at any point during pregnancy.^{20,39,40,44,46} Postpartum women were the target of five studies,^{18,21,41,45} and two studies included women who were either pregnant or postpartum.^{35,38} Most postpartum women were interviewed before being discharged from the hospital^{18,41} or within a few weeks of giving birth,²¹ but the definition of postpartum ranged from immediately after birth to 2 years postdelivery.³⁸ One study included women who were pregnant, postpartum, or of childbearing age.³⁷

Societal Barriers

Common societal pressures identified in these studies included culture,^{19,39} finances,^{20,39,40,44} transportation,^{40,41,43} existing children and childcare,^{21,35,36,42} familial needs and desires,^{18,45} partner characteristics,^{21,37} and significant others' beliefs about pregnancy and health-care.^{19–21,37}

Maternal Component

The maternal dimension of care encompasses aspects of the woman and her personal situation that affected her ability to obtain care. Common maternal barriers identified in this analysis are listed in Table 2. One barrier that appeared often was poor motivation to begin care.^{18–21,35,37,38,40,41,45,46}

Many women reported that they did not begin prenatal care for an unintended pregnancy because they were considering abortion,^{40,45,46} were unaware that they were pregnant,^{18,19,21} or were too depressed to act.^{20,21,38} Adolescent women reported that they delayed care because they were afraid of disclosing their pregnancy to others.^{18,20,45} Women also reported that illicit drug use delayed their entry into care for multifaceted reasons, including a fear of judgment and of losing custody of the baby at birth.^{37,41,42,48} Some women stated that they did not believe prenatal care was worthwhile because of

Table 3. Common Structural Barriers to Prenatal Care Reported by Women

Clinic
Location ^{35,39}
Hours ^{35,36,39}
Delay for initial appointment ^{20,36,40}
Wait time while at the clinic ^{20,35,44,53}
Facility not child-friendly ^{21,35,36}
Cost of services ^{37,38,41,44} and options for payment ⁴³
Language spoken by staff ³⁹
Staff attitudes ^{37,38}
Poor quality of care ^{38,40}
Provider
Poor communication skills, insensitive attitude ³⁵
Cultural sensitivity ³⁹
Language spoken ³⁹
Lack of a consistent provider ³⁵

cultural beliefs or previous uncomplicated pregnancies.^{19,39,40,45} Women in some studies believed that because they were feeling well they did not need prenatal care.^{18,42} Many women reported that a fear of medical procedures, pelvic examinations, or blood draws caused them to delay seeking care.^{19,20,42,43}

Despite barriers and fears, most women were motivated and able to obtain care at some point in pregnancy.⁷ The most prevalent motivator for prenatal care was the health of the baby.^{19–21,36,40,42} This was true for women of all ages, races, and socioeconomic groups. Friends, family, and the father of the baby were mentioned as motivators, but with less frequency than the health of the baby.^{19–21,37,46} One study listed the father of the baby as both a motivator and a barrier to care.³⁷

Even when women were motivated to obtain care, some reported struggles with transportation,^{18,19,21,36,39,41,43,45} finances,^{19,20,39,40,44} and the needs of their existing children.^{21,35,36,42} Women reported that, in addition to medical fees, the cost of prenatal care includes transportation, parking, and childcare.^{21,35–37}

Structural Dimension

The structural dimension of access encompasses the clinic, the format of care, and, to some extent, the provider of care. Common structural barriers are listed in Table 3. Structural barriers included the location and hours of the clinic and availability of appointments.^{36,39} The cost of services^{37,38,41,44} and payment options⁴³ are also cited as key barriers, especially for women who do not qualify for Medicaid. The language and cultural sensitivity of the clinic staff also can create barriers for women who are not part of the dominant culture of the area.³⁹ Women felt that staff attitudes^{37,38} and poor quality of care^{38,40} made getting prenatal care difficult. Women with children noted that clinics are often not child-friendly, resulting in a need for childcare.^{21,35,36} Wait times both for the first appointment^{20,36,40} and while at the clinic^{20,35,42,44} are

mentioned in many studies as a barrier to care. The one study of middle-class women found a 6-week wait time for the initial appointment,³⁶ suggesting that access problems exist even for privately-insured women. Structural facilitators of care included clinic staff who were bilingual or could speak their language and were culturally sensitive,³⁹ convenient clinic hours,⁴⁶ and readily available public transportation.⁴⁶ One study that identified structural motivators used only yes/no questions,⁴⁶ which may have prompted the women to state structural motivators.

The Medical Dimension

By the time the woman sees a provider, she has overcome the majority of common barriers. Providers can act as a barrier through inappropriate attitude,³⁵ poor cultural sensitivity, or language problems.³⁹ Some women reported the lack of a consistent provider as a barrier.³⁵ Researchers often do not report the provider type of the women surveyed. No qualitative study was identified that compared women's perceptions of access across provider types. The positive health outcomes seen in several studies of midwifery care of vulnerable populations^{49,50} may be related, in part, to better access for clients with a midwife provider. Motivators in the medical dimension include positive provider-client relationships^{40,42} and, to some extent, the health of the baby^{19-21,36,40,42} and the woman's health.²¹

DISCUSSION

The literature on prenatal care access has many limitations, including few studies published within the past 5 years, a lack of exploration about the influence of provider type on access to care, and no studies exploring how nontraditional prenatal care formats affect access to care. However, the current literature does provide clinicians with information about the barriers women encounter in trying to obtain care during pregnancy.

Another weakness in the access literature is the lack of longitudinal studies on prenatal care access. The experience of prenatal care changes over the course of gestation. To enter prenatal care, a woman must locate a provider who accepts her insurance or form of payment and she must obtain an appointment.⁴⁰ She may have less financial stress at subsequent visits. If a woman fears medical procedures,^{19,20,42,43} the blood work and pelvic examination included in the first visit may decrease her motivation to begin care but may not affect her ability to maintain care. The increasing frequency of appointments at later gestations also may affect access because of greater time and transportation demands. However, in all studies reviewed, women are surveyed about their experience of access only once during their perinatal course. Therefore, study results may be influenced by the timing of the interview. Future research should explore how a woman's

experience of access changes over the course of her pregnancy.

CLINICAL AND POLICY IMPLICATIONS

Many of the barriers women reported relate to the clinical environment. Listening to the voices of women in describing their experience is important in opening pathways to care. While many of the identified barriers found in this analysis were personal, clinics and health care practices can adjust to women's needs through targeted interventions at the institution, staff, or provider level. Many women stated that transportation is a barrier to care; therefore, ensuring the placement of clinics near public transportation or adjusting clinic hours can decrease transportation problems for women.³⁹ Including play areas for children in waiting and examination rooms may decrease the need for childcare.

Multilingual receptionists, flexible payment plans, and a high quality of care can also increase accessibility for at-risk groups of women. A reduction in wait times for the first appointment and decreasing on-site waits can improve the prenatal experience of all women, because many barriers to care are also customer service problems. Women who fear medical procedures^{19,20,42,43} may benefit from an orientation visit.

Health care settings that offer prenatal care can use focus groups to identify site-specific barriers.⁵¹ Many women stated that they did not obtain care for an unintended pregnancy.^{20,38,40,45,52} Assisting women in conceiving only desired pregnancies through the availability of contraception and preconception planning may decrease barriers to perinatal care overall.

The current prenatal visit structure and format is not research-based²³ and may not resonate with the needs of women. The newer group model, called CenteringPregnancy, combines prenatal care with a group format and has shown excellent health and satisfaction outcomes.²⁴ The success of CenteringPregnancy might encourage the development of more models of care to assist and motivate women in obtaining and maintaining prenatal care.²⁴

A caring and culturally sensitive provider may encourage women to continue prenatal care.^{35,39} Provider type may also affect perceptions of access, but this area needs further research. Midwives have much to offer vulnerable women on many levels by providing comprehensive, individualized, culturally sensitive care to women across the lifespan. Certified nurse-midwives and certified midwives can advocate for their practice sites to provide open pathways to entry both for the first visit and throughout pregnancy.

Finally, while the current research classifies women's responses into the categories of barriers and motivators, they are not opposites. Motivators encourage and support prenatal care²¹ and barriers are obstacles in that path.

Therefore, it may be better to examine facilitators of care, or those people, policies, or institutions that enhance access. Facilitators could include late clinic hours, multilingual receptionists, continuity with one provider, or new prenatal care models. Facilitators are not currently described in the access literature, but the literature on quality of care overlaps this topic.

CONCLUSION

Quality prenatal care can potentially reduce the rates of infant and maternal mortality and morbidity² and reduce rates of long-term disability.²⁹ Ensuring that all women have timely access to services is important in decreasing health disparities and improving maternal and infant outcomes within the United States.² Women have identified multiple barriers to obtaining early and adequate prenatal care. Women's reports of barriers show remarkable similarity across geographic, racial, and socioeconomic groups. While maternal motivation is often a barrier to prenatal care and has been well explored in the literature, clinical barriers and facilitators need further exploration. Future research should target how the format and provider of care affect a woman's perception of access. Clinics can address barriers identified in the literature to increase access and client satisfaction.

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REFERENCES

1. Di Mario S, Gori G, Spettoli D. What is the effectiveness of antenatal care? Copenhagen, Denmark: World Health Organization Regional Office for Europe, 2005.
2. Centers for Disease Control and Prevention Web site. Safe Motherhood: Promoting health for women before, during, and after pregnancy. Available from: www.cdc.gov/nccdphp/publications/aag/pdf/drh.pdf [Accessed September 10, 2007].
3. Kung HC, Hoyert DL, Xu J, Murphy SL. Deaths: Final data for 2005. *Natl Vital Stat Rep* 2008;56:1-120.
4. World Health Organization. WHO recommended interventions for improving maternal and newborn health. In: Department of Making Pregnancy Safer, editor. Integrated management of pregnancy and childbirth. Geneva, Switzerland: World Health Organization, 2007.
5. Martin JA, Hamilton BE, Sutton PD, Ventura SJ, Menacker F, Kirmeyer S, et al. Births: Final data for 2005. *Natl Vital Stat Rep* 2007;56:1-103.
6. Frisbie WP, Echevarria S, Hummer RA. Prenatal care utilization among non-Hispanic Whites, African Americans, and Mexican Americans. *Matern Child Health J* 2001;5:21-33.
7. Williams L, Morrow B, Shulman H, Stephens R, D'Angelo D, Fowler C. PRAMS 2002 surveillance report. Atlanta, GA: Centers for Disease Control and Prevention, 2006.
8. Laditka SB, Laditka JN, Probst JC. Racial and ethnic disparities in potentially avoidable delivery complications among pregnant Medicaid beneficiaries in South Carolina. *Matern Child Health J* 2006;10:339-50.
9. Adams EK, Gavin NI, Benedict MB. Access for pregnant women on Medicaid: Variation by race and ethnicity. *J Health Care Poor Underserved* 2005;16:74-95.
10. McLafferty S, Grady S. Prenatal care need and access: A GIS analysis. *J Med Syst* 2004;28:321-33.
11. Barnet B, Duggan AK, Devoe M. Reduced low birth weight for teenagers receiving prenatal care at a school-based health center: Effect of access and comprehensive care. *J Adolesc Health* 2003;33:349-58.
12. Park JH, Vincent D, Hastings-Tolsma M. Disparity in prenatal care among women of colour in the USA. *Midwifery* 2007;23:28-37.
13. Healy AJ, Malone FD, Sullivan LM, Porter TF, Luthy DA, Comstock CH, et al. Early access to prenatal care: Implications for racial disparity in perinatal mortality. *Obstet Gynecol* 2006;107:625-31.
14. Williams LM, Morrow B, Lansky A, Beck LF, Barfield W, Helms K, et al. Surveillance for selected maternal behaviors and experiences before, during, and after pregnancy. Pregnancy Risk Assessment Monitoring System (PRAMS), 2000. *MMWR Surveill Summ* 2003;52:1-14.
15. Rosenberg D, Handler A, Rankin KM, Zimbeck M, Adams EK. Prenatal care initiation among very low-income women in the aftermath of welfare reform: Does pre-pregnancy Medicaid coverage make a difference? *Matern Child Health J* 2007;11:11-7.
16. Laditka SB, Laditka JN, Bennett KJ, Probst JC. Delivery complications associated with prenatal care access for Medicaid-insured mothers in rural and urban hospitals. *J Rural Health* 2005;21:158-66.
17. Alexander GR, Kotelchuck M. Assessing the role and effectiveness of prenatal care: History, challenges, and directions for future research. *Public Health Rep* 2001;116:306-16.
18. Braveman P, Marchi K, Egerter S, Pearl M, Neuhaus J. Barriers to timely prenatal care among women with insurance: The importance of prepregnancy factors. *Obstet Gynecol* 2000;95(6 Pt 1):874-80.
19. Rogers C, Schiff M. Early versus late prenatal care in New Mexico: Barriers and motivators. *Birth* 1996;23:26-30.
20. Teagle SE, Brindis CD. Perceptions of motivators and barriers to public prenatal care among first-time and follow-up adolescent patients and their providers. *Matern Child Health J* 1998;2:15-24.
21. Lia-Hoagberg B, Rode P, Skovholt CJ, Oberg CN, Berg C, Mullett S, et al. Barriers and motivators to prenatal care among low-income women. *Soc Sci Med* 1990;30:487-95.
22. National Center for Health Statistics Web site. NCHS definitions: Prenatal care. Available from: www.cdc.gov/nchs/data/awh/nchsdef/prenatalcare.htm [Accessed July 11, 2008].
23. Villar J, Carroli G, Khan-Neelofur D, Piaggio G, Gulmezoglu M. Patterns of routine antenatal care for low-risk pregnancy. *Cochrane Database Syst Rev* 2001;4:CD000934.
24. Ickovics JR, Kershaw TS, Westdahl C, Magriples U, Massey Z, Reynolds H, et al. Group prenatal care and perinatal

outcomes: A randomized controlled trial. *Obstet Gynecol* 2007; 110(2 Pt 1):330–9.

25. Johnson TR, Zettelmaier MA, Warner PA, Hayashi RH, Avni M, Luke B. A competency based approach to comprehensive pregnancy care. *Womens Health Issues* 2000;10:240–7.

26. Lumley J, Oliver SS, Chamberlain C, Oakley L. Interventions for promoting smoking cessation during pregnancy. *Cochrane Database Syst Rev* 2004;4:CD001055.

27. Alexander GR, Kotelchuck M. Quantifying the adequacy of prenatal care: A comparison of indices. *Public Health Rep* 1996; 111:408–18.

28. Kogan MD, Martin JA, Alexander GR, Kotelchuck M, Ventura SJ, Frigoletto FD. The changing pattern of prenatal care utilization in the United States, 1981-1995, using different prenatal care indices. *JAMA* 1998;279:1623–8.

29. Fuchs KM, Peipert JF. First trimester Down syndrome screening: Public health implications. *Semin Perinatol* 2005;29:267–71.

30. Kennedy HP. A concept analysis of optimality in perinatal health. *J Obstet Gynecol Neonatal Nurs* 2006;35:763–9.

31. Conway KS, Kutinova A. Maternal health: Does prenatal care make a difference. *Health Econ* 2006;15:461–88.

32. Kotelchuck M. Pregnancy Risk Assessment Monitoring System (PRAMS): Possible new roles for a national MCH data system. *Public Health Rep* 2006;121:6–10.

33. Galvan JL. Writing literature reviews: A guide for students of the social and behavioral sciences. Glendale, CA: Pycszak, 2006.

34. Pycszak F. Evaluating research in academic journals: A guide to realistic evaluation, 3rd ed. Glendale, CA: Pycszak, 2005.

35. Bloom KC, Bednarzyk MS, Devitt DL, Renault RA, Teaman V, Van Loock DM. Barriers to prenatal care for homeless pregnant women. *J Obstet Gynecol Neonatal Nurs* 2004; 33:428–35.

36. Roberts RO, Yawn BP, Wickes SL, Field CS, Garretson M, Jacobsen SJ. Barriers to prenatal care: Factors associated with late initiation of care in a middle-class midwestern community. *J Fam Pract* 1998;47:53–61.

37. Milligan R, Wingrove BK, Richards L, Rodan M, Monroe-Lord L, Jackson V, et al. Perceptions about prenatal care: Views of urban vulnerable groups. *BMC Public Health* 2002;2:25.

38. Daniels P, Noe GF, Mayberry R. Barriers to prenatal care among black women of low socioeconomic status. *Am J Health Behav* 2006;30:188–98.

39. Shaffer CF. Factors influencing the access to prenatal care by Hispanic pregnant women. *J Am Acad Nurse Pract* 2002; 14:93–6.

40. Patterson ET, Freese MP, Goldenberg RL. Seeking safe passage: Utilizing health care during pregnancy. *Image J Nurs Sch* 1990;22:27–31.

41. Kalmuss D, Fennelly K. Barriers to prenatal care among low-income women in New York City. *Fam Plann Perspect* 1990; 22:215–8, 231.

42. Mikhail BI. Perceived impediments to prenatal care among low-income women. *West J Nurs Res* 1999;21:335–55.

43. Fuller CA, Gallagher R. Perceived benefits and barriers of prenatal care in low income women. *J Am Acad Nurse Pract* 1999; 11:527–32.

44. Beckmann CA, Buford TA, Witt JB. Perceived barriers to prenatal care services. *MCN Am J Matern Child Nurs* 2000;25:43–6.

45. Leatherman J, Blackburn D, Davidhizar R. How postpartum women explain their lack of obtaining adequate prenatal care. *J Adv Nurs* 1990;15:256–67.

46. Johnson AA, El-Khorazaty MN, Hatcher BJ, Wingrove BK, Milligan R, Harris C, et al. Determinants of late prenatal care initiation by African American women in Washington, DC. *Matern Child Health J* 2003;7:103–14.

47. Braveman P, Bennett T, Lewis C, Egerter S, Showstack J. Access to prenatal care following major Medicaid eligibility expansions. *JAMA* 1993;269:1285–9.

48. Brady TM, Visscher W, Feder M, Burns AM. Maternal drug use and the timing of prenatal care. *J Health Care Poor Underserved* 2003;14:588–607.

49. Raisler J, Kennedy H. Midwifery care of poor and vulnerable women, 1925–2003. *J Midwifery Womens Health* 2005;50:113–21.

50. Davidson MR. Outcomes of high-risk women care for by certified nurse-midwives. *J Midwifery Womens Health* 2002;47:46–9.

51. Sheppard VB, Zambrana RE, O'Malley AS. Providing health care to low-income women: A matter of trust. *Fam Pract* 2004; 21:484–91.

52. Johnson AA, Hatcher BJ, El-Khorazaty MN, Milligan RA, Bhaskar B, Rodan MF, et al. Determinants of inadequate prenatal care utilization by African American women. *J Health Care Poor Underserved* 2007;18:620–36.

53. Mikhail B. Prenatal care utilization among low-income African American women. *J Community Health Nurs* 2000;17:235–46.