Exploring the Group Prenatal Care Model: A Critical Review of the Literature

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ABSTRACT

Few studies have compared perinatal outcomes between individual prenatal care and group prenatal care. A critical review of research articles that were published between 1998 and 2009 and involved participants of individual and group prenatal care was conducted. Two middle range theories, Pender's health promotion model and Swanson's theory of caring, were blended to enhance conceptualization of the relationship between pregnant women and the group prenatal care model. Among the 17 research studies that met inclusion criteria for this critical review, five examined gestational age and birth weight with researchers reporting longer gestations and higher birth weights in infants born to mothers participating in group prenatal care, especially in the preterm birth population. Current evidence demonstrates that nurse educators and leaders should promote group prenatal care as a potential method of improving perinatal outcomes within the pregnant population.

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Learning is a lifelong journey. For expectant parents, the acquisition of knowledge changes lives not only for mother and infant but also for the family unit as a whole. During the prenatal period, there is much for new mothers to learn, even for the mother who has experienced prior birth. How mothers today receive their prenatal care continues to evolve. With today's fast-paced, cost-conscious, and information technology-loaded health-care environments, current prenatal health-care stakeholders grapple with how best to deliver quality prenatal care that produces the best outcomes.

The ultimate goal of every pregnancy is a healthy, full-term baby. Yet, data from the *National Vital Statistics Reports* showed that in 2006, the U.S. preterm birth rate rose to 12.8% of all births and the low birth weight rate rose to 8.3%, the highest rate in 40 years. The report also found apparent health disparities among the Hispanic population, with preterm births and low birth weight rates rising slightly from previous years (Martin et al., 2009).

With today's fast-paced, cost-conscious, and information technology-loaded health-care environments, current prenatal health-care stakeholders grapple with how best to deliver quality prenatal care that produces the best outcomes.

These statistics highlight the need for change, which has led to research that focuses on ways to improve prenatal outcomes through the delivery of prenatal care.

PURPOSE OF CRITICAL REVIEW OF THE LITERATURE

To meet the educational needs of pregnant women, an array of prenatal care delivery methods have evolved; however, the traditional educational approach has been system centered rather than patient centered. Health-care providers often rely on the mother's ability to be knowledgeable about pregnancy and parenting information (Bailey, Crane, & Nugent, 2008). Traditionally, pregnant women receive prenatal education at an individual prenatal care visit with a health-care provider and at separate (optional) childbirth education classes. Because multiple prenatal outcomes are largely dependent on modifiable maternal risk factors (e.g., weight or smoking) and because of worsening outcomes, newer models of prenatal care and education are emerging.

For more information about CenteringPregnancy, visit the following website: https://www.centeringhealthcare.org/pages/centering-model/pregnancy-overview.php

This critical review focuses on a newer model of prenatal care: group prenatal visits. The following primary research question guided the purpose for this critical review of the literature: Does group prenatal care produce better perinatal outcomes over individual prenatal care? The perinatal period spans approximately from the 28th week of pregnancy (gestation) to the 28th day after birth (*Mosby's Medical Dictionary*, 2009). Primary perinatal outcomes studied include gestational age and birth weight. Gestational age is the point in the pregnancy in which the infant is born, with preterm birth occurring at < 37 weeks of gestation. Birth weight is the weight (mass) of an infant at the time of birth, with low birth weight defined as $\leq$ 2,500 g or 5 lb, 8 oz (*Mosby's Medical Dictionary*, 2009).

Poor perinatal outcomes impact individual families, society, and an overburdened health-care system. Because of technological advances in medicine, babies born too early are surviving. If longer gestation periods and higher birth weights could be achieved through improved models of prenatal care and education, a significant beneficial impact on birth outcomes could be achieved. With the growing trend toward evidence-based practice, nurses not only have a strong voice but also have a responsibility to change perceptions regarding the need to adopt research evidence into nursing practice. Patients receiving medical and/or nursing care in a group format (e.g., shared visits) is not a new concept. Group medical appointments have evolved in the management of patients with chronic diseases, such as diabetes, hypertension, and chronic obstructive pulmonary disease (DeVries, Darling-Fisher, Thomas, & Belanger-Shugart, 2008). The group care format is one alternative to the traditional delivery of medical care.

Group prenatal care is one model that is growing in popularity. One reason for its popularity may relate to health-care provider office visits that are becoming shorter because of productivity expectations and cost containment (Rising & Senterfitt, 2009). A common model of group prenatal care is CenteringPregnancy, developed by Sharon Schindler Rising—a certified nurse-midwife. This model incorporates specific components of prenatal care, such as risk assessment, education, and support (Rising, 1998). Instead of individual prenatal care visits with the patient and provider throughout the entire pregnancy, a facilitator meets with a group of 8–12 women monthly until the last few weeks of pregnancy. Although group prenatal care is a relatively new model, research examining group prenatal care and its effects on gestational age and birth weight outcomes is slowly growing, as evident in 17 studies synthesized for this critical review of the literature.

SIGNIFICANCE TO NURSING

Nurses have an opportunity to be more involved in prenatal education using the group prenatal care model. Traditionally, nurses have been at the heart of childbirth classes. These classes have been in existence for more than 50 years and were initially developed to prepare women for labor and birth (Walker & Worrell, 2008). Instead of separate childbirth classes, the group prenatal care model incorporates prenatal care and patient education in a comprehensive format often led by nurse facilitators. Nurses, with their adept interpersonal and listening skills, function well within the framework of a group setting.

In the 2006 *Listening to Mothers II* survey, researchers found that mothers were exposed to childbirth more through the media than through childbirth education classes (Declercq, Sakala, Corry, & Applebaum, 2007). With group prenatal visits, the intent is to increase women's involvement in the prenatal care experience and to offer the opportunity for women to share pregnancy and birth experiences with one another. In addition, more educational time (20 hr of group care vs. 2 hr of individual care) occurs

over the course of the pregnancy (Ickovics et al., 2007). In the group prenatal care model, nurses play a major role in the educational needs of pregnant women.

THEORETICAL FRAMEWORK/CONCEPTUAL FRAMEWORK

Two middle range theories, Pender's health promotion model (McEwen & Wills, 2007) and Swanson's theory of caring (Beatty, 2004), contain components that encompass the essence of the educational needs of pregnant women seeking meaningful experiences. Prenatal care lends itself easily to the concept of health promotion. Pregnancy itself is not an illness or disease state; rather, it should be seen as a state of wellness. To facilitate behavior that promotes health and wellness, Pender's health promotion model fosters the use of nursing interventions that empower the client's ability to self-care through education, which may occur within a group setting (McEwen & Wills, 2007). Aspects of the model are pertinent to how members of group prenatal care may interact and learn from each other. Caring is a universal concept for nurses and is at the core of nursing's existence. From her research, Swanson developed five caring processes for the theory of caring: knowing, being with, doing for, enabling, and maintaining belief (Beatty, 2004). All caring processes are easily adapted to pregnancy and prenatal care by the various stakeholders.

METHODOLOGY

This critical review of the literature covers an 11-year period of research articles published from 1998 to 2009. Because group care is a new model of prenatal care delivery, this literature search included the time period beginning when most research findings about group prenatal care was first reported, which dates back to 1998. Three electronic bibliographic databases were searched: Academic Search Premier, Cumulative Index to Nursing and Allied Health Literature, and PubMed/MEDLINE. The key words and phrases used for the search were *group prenatal care*, *individual prenatal care*, *traditional prenatal care*, *prenatal education*, *childbirth education*, and *CenteringPregnancy*. The database search expanded to include the Cochrane Library, the Health and Wellness Center, and the Google Scholar. National objectives were obtained from the U.S. Department of Health and Human Services (2009) report, *Healthy People 2020 Public Meetings: 2009 Draft Objectives*.

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Research and review articles written in the English language between 1998 and 2009 were included in the review. Inclusion criteria for the search were the following: (a) studies using quantitative or qualitative methodology, (b) studies comparing group prenatal care to traditional or individual prenatal care, (c) studies comparing perinatal outcomes prior to and following group prenatal care implementation, and (d) studies or review articles discussing group prenatal care in a prenatal/childbirth education context. Research studies and articles that did not discuss prenatal care were excluded when prenatal care delivery care models or prenatal/childbirth education were not discussed. Articles written before 1998 were also excluded from this review.

RESULTS

The depth and quantity of research studies in this review of the literature was rather limited.

For the studies that explored group prenatal care, the CenteringPregnancy model was typically the model studied. For this critical review, 34 research and review articles describing the group prenatal care practice model met the inclusion criteria: two mixed methods (quantitative and qualitative) studies, 13 quantitative studies, two qualitative studies, 15 review articles, and two literature reviews. One national standard was chosen to highlight prenatal educational goals. Table 1 presents a summary of the 17 research studies but does not include the 17 review articles that met inclusion criteria.

Major Findings

The results of the synthesized scholarly research studies and articles demonstrate the similarities and differences between individual and group prenatal care found across the prenatal care continuum. The lack of abundant research studies limits the ability to draw major conclusions based on research findings. It is clear that more research comparing group prenatal care to traditional prenatal care is necessary if health-care organizations are considering revising current prenatal care models. Evidence-based

TABLE 1
Summary of 17 Research Studies Published Between 1998 and 2009 Regarding the Group Prenatal Care Model

Article Title/Journal	Author(s)/Publication Year	Type/Design/Sampling	Participants	Findings
Centering Pregnancy: An interdisciplinary model of empowerment. *Journal of Nurse-Midwifery*	Rising, S. S. (1998)	Quantitative; descriptive study; pilot project; focus groups	111 women	Decrease in emergency room visits for women in CenteringPregnancy program (compared to a convenience sample) and high patient satisfaction.
Group prenatal care and preterm birth weight: Results from a matched cohort study at public clinics. *Obstetrics and Gynecology*	Ickovics, J. R., Kershaw, T. S., Westdahl, C., Rising, S. S., Klima, C., Reynolds, H., & Magriples, U. (2003)	Quantitative; prospective, matched cohort study; comparison group matched 1:1 by age, race, parity	458 pregnant women (229 group care; 229 individual care); 80% Black and 15% Latina	Centering group prenatal care infants were 3,228.2 g vs. individual prenatal care infants at 3,159.1 g. Preterm infants of group prenatal care mothers were significantly larger than infants receiving individual prenatal care. For preterm infants, the average gestational age was greater in the group prenatal care mothers.
Pregnancy outcomes of adolescents enrolled in a CenteringPregnancy program. *Journal of Midwifery & Women's Health*	Grady, M. A., & Bloom, K. C. (2004)	Quantitative; nonrandomization demonstration study (historical comparison)	124 adolescents enrolled in CenteringPregnancy; 93.6% Black	Statistically significant decrease in low birth rate and prematurity in infants born to teens in CenteringPregnancy group compared with the two comparison groups
Use of the Centering-Pregnancy program in a school-based clinic: A pilot study. *Clinical Excellence for Nurse Practitioners*	Bloom, K. C. (2005)	Quantitative; pilot study; nonequivalent control group design; questionnaires	63 teens (10 in self-selected group prenatal care; 53 in self-selected traditional prenatal care)	Teens in group prenatal care scored significantly higher on the knowledge posttest than teens in traditional prenatal care (100% and 55%, respectively). No significant differences between the two groups for any pregnancy complications.
Comparison of selected outcomes of CenteringPregnancy versus traditional prenatal care. *Journal of Midwifery & Women's Health*	Baldwin, K. A. (2006)	Quantitative; comparison study; nonequivalent control group; pretest/posttest design; questionnaires	98 women (48 in traditional prenatal care and 50 in group prenatal care)	Knowledge was greater in CenteringPregnancy group based on 12-item questionnaire results. Mean scores for both pretest and posttest for both participation and satisfaction were almost identical between the two groups.
Perceived learning needs of minority expectant women and barriers to prenatal education. *The Journal of Perinatal Education*	Berman, R. O. (2006)	Quantitative study; convenience sample; survey	59 women (55 foreign born; 70% Spanish speaking; 66% multipara)	Of the total sample, 80% believed it was "important" or "very important" for pregnant women to attend childbirth classes, and 61% would likely receive the most accurate information from the health-care provider over the childbirth educator or family member.
Educational preferences in a prenatal clinic population. *International Journal of Childbirth Education*	Risica, P. M., & Phipps, M. G. (2006)	Quantitative; pilot project; paper survey	139 women; 60% primigravida	Most respondents (72%) preferred prenatal information received individually from their nurse or physician. Survey data showed that prenatal classes were preferred by only 19% of the sample.
Executive summary. Listening to mothers II: Report of the second national U.S. survey of women's childbearing experiences. *The Journal of Perinatal Education*	Declercq, E. R., Sakala, C., Corry, M. P., & Applebaum, S. (2007)	Quantitative; national survey (executive summary)	1,573 women (200 per phone interview and 1,373 per online survey)	Far more mothers were exposed to childbirth through the media than childbirth classes. Most mothers (79%) received prenatal care from an obstetrician. Experienced mothers were less likely to take childbirth education classes.
Group prenatal care and perinatal outcomes: A randomized controlled trial. *Obstetrics and Gynecology*	Ickovics, J. R., Kershaw, T. S., Westdahl, C., Magriples, U., Massey, Z., Reynolds, H., & Rising, S. S. (2007)	Quantitative; control design; baseline interviews, questionnaires	1,047 women; English or Spanish speaking; singleton births only	Women assigned to group care (9.8%) were significantly less likely to have preterm births than women in individual care (13.8%). Group care mothers had significantly more prenatal knowledge and felt better prepared for labor and birth.

(continued)

TABLE 1
Summary of 17 Research Studies Published Between 1998 and 2009 Regarding the Group Prenatal Care Model (Cont.)

Article Title/Journal	Author(s)/Publication Year	Type/Design/Sampling	Participants	Findings
Contemporary dilemmas in American childbirth education: Findings from a comparative ethnographic study. *The Journal of Perinatal Education*	Morton, C. H., & Hsu, C. (2007)	Qualitative; ethnographic study; 11 childbirth class series; classroom observations; interviews	17 childbirth educators and/or key decision makers	Childbirth education is a cultural phenomenon with childbirth educator values that run deep regarding the balance between prenatal information, evidence-based research, and consumer choice.
Retaining women in a prenatal care randomized controlled trial in Canada: Implications for program planning. *BMC Public Health*	Tough, S. C., Siever, J. E., & Johnston, D. W. (2007)	Quantitative; randomized control trial; telephone interviews	1,737 women; interviews conducted in English, Punjabi, Urdu, Cantonese, French, Arabic, and Mandarin	Women who did not complete the study had the following characteristics: young maternal age, lower level of education, and low income. Nonwhite women were more likely to dropout.
Contemporary women's perceptions of childbirth education. *The Journal of Perinatal Education*	Koehn, M. (2008)	Qualitative; grounded theory study; audiotaped interviews; class observations and review of class materials	Nine women; English speaking, White, married, some college-level education	Underlying basic social process emerged, known as "negotiating the journey," which represents moving through an unknown pregnancy experience with childbirth education classes as a critical component of the transition to motherhood.
Group prenatal care: An analysis of cost. *Journal of Health Care Finance*	Mooney, S. E., Russell, M. A., Prairie, B., Savage, C., & Weeks, W. B. (2008)	Quantitative; cost analysis report; hospital administrative data	Three certified nurse-midwives and three physicians	Before implementing group prenatal care, health-care organizations should conduct a cost analysis and weigh the benefits of the model against nonfinancial benefits (e.g., patient satisfaction, improved knowledge, and higher birth weights).
"I wasn't alone"—a study of group prenatal care in the military. *Journal of Midwifery & Women's Health*	Kennedy, H. P., Farrell, T., Paden, R., Hill, S., Jolivet, R., Willetts, J., & Rising, S. S. (2009)	Mixed-method study (randomized controlled trial and qualitative study with narrative analysis); telephone interviews; observation	322 women; ethnic/racial characteristic representative of the U.S. military	Three themes were identified: (a) "I wasn't alone . . ." (b) "I liked it but . . ." (c) "They really need to listen . . ."
Introduction of CenteringPregnancy in a public health clinic. *Journal of Midwifery & Women's Health*	Klima, C., Norr, K., Vonderheid, S., & Handler, A. (2009)	Mixed-method study (quantitative and qualitative); pilot project; focus groups; survey and retrospective medical record review	268 women; 98% Black; all eligible for Medicaid	CenteringPregnancy women significantly attended more prenatal visits, gained more weight, were more likely to try breastfeeding, had infants born at a later gestational age, and had infants weighing 200g or more (on average) than women in individual care.
Comparison of Centering Pregnancy to traditional care in Hispanic mothers. *Maternal and Child Health Journal*	Robertson, B., Aycock, D. M., & Darnell, L. A. (2009)	Quantitative study (quasi-experimental prospective comparative design); questionnaires	49 Hispanic women; self-selected (24 CenteringPregnancy and 25 traditional care)	Both groups had similar, positive birth outcomes. Vaginal births: 87% in the traditional group and 89% in the CenteringPregnancy group. Birth weights were similar: 7.3 lb $\pm$ 0.74 lb in the traditional group and 7.5 lb $\pm$ 1.5 lb in the CenteringPregnancy group.
CenteringPregnancy-Smiles™: Implementation of a small group prenatal care model with oral health. *Journal of Health Care for the Poor and Underserved*	Skelton, J., Mullins, R., Langston, L. T., Womack, S., Ebersole, J. L., Rising, S. S., & Kovarik, R. (2009)	Quantitative study; preliminary report	447 women (80% were receiving public assistance and had an educational level no more than high school)	The singleton preterm birth rate for women in the CenteringPregnancySmiles™ program was 6.6% (in 2006) compared to 13.7% of regional singleton births.

practice in nursing is increasingly the basis for practice changes, as is the need for cost-effective care delivery models.

Gestational Age and Birth Weight

Positive perinatal outcomes are the goal of every pregnancy. Two important outcomes that have been studied in the group prenatal care and individual prenatal care models are gestational age and birth weight. Pregnant women can modify their lifestyles to decrease risk factors associated with poor perinatal outcomes related to gestational age and birth weight, such as abstaining from alcohol, nicotine, and drugs; eating healthy; exercising; and gaining appropriate weight (Walker & Worrell, 2008). The consequences of low birth weight and preterm birth are potentially grave. Novick (2004) described how prenatal care objectives have shifted to the prevention of low birth weight, which is one of the major causes of infant mortality. The model(s) of prenatal care that produce the best perinatal outcomes should be the standard of care for all pregnant women and across all health-care organizations.

Among the 17 research studies that met inclusion criteria for this critical review, five examined gestational age and birth weight, with researchers reporting longer gestations and higher birth weights in infants born to mothers participating in group prenatal care, especially in the preterm birth population (see Table 2). In one study that compared birth weights of infants born to Black/Latina women of lower socioeconomic status participating in CenteringPregnancy and individual prenatal care, birth weights were higher in the group prenatal care model (Ickovics et al., 2003). In the same study, researchers found preterm infants of group prenatal care patients had significantly higher birth weights, and the average gestational age was greater than for infants whose mothers received individual prenatal care. For infants born at term (37–40 weeks), there was no difference in average gestational age. In this study, external validity is challenged because of a focused or narrow population.

Pregnant adolescents pose unique challenges related to prenatal education. Appointment times with health-care providers often conflict with school schedules. Nurses should consider prenatal care models that have the potential to produce improved perinatal outcomes for all pregnant women, including teens. Grady and Bloom (2004) found a statistically significant decrease in low birth weight and prematurity in infants born to teens in a CenteringPregnancy group in comparison to two historical comparison groups, which may result in limited generalizability of the findings related to this special population.

In a randomized controlled trial involving 1,047 young, ethnic minority women at two university-affiliated hospital prenatal clinics, Ickovics et al. (2007) found that women assigned to group prenatal care (CenteringPregnancy) were significantly less likely to experience a preterm birth than women in

TABLE 2

Perinatal Outcomes of Gestational Age and Birth Weight in Research Studies Published Between 1998 and 2009 That Examined Individual Prenatal Care Versus Group Prenatal Care

Researchers	Outcomes	Individual Prenatal Care	Group Prenatal Care	*p*
Ickovics et al. (2003)	Birth weight (term)	3,159 g	3,228 g	<.01
Ickovics et al. (2003)	Preterm birth weight	1,990 g	2,398 g	<.05
Ickovics et al. (2003)	Preterm gestational age	32.6 weeks	34.8 weeks	<.001
Grady & Bloom (2004)	Preterm births <37 weeks	23.2%/25.7%	10.5%	<.05
Grady & Bloom (2004)	Low birth weight <2,500 g	18.3%/22.9%	8.8%	<.05
Ickovics et al. (2007)	Preterm births	13.8%	9.8%	<.045
Ickovics et al. (2007)	Birth weight (term)	3,112 g	3,161 g	<.24
Ickovics et al. (2007)	Low birth weight <2,500 g	10.7%	11.3%	<.90
Klima, Norr, Vonderheid, & Handler (2009)	Preterm gestational age	34.8 weeks	35.6 weeks	*ns*
Klima, Norr, Vonderheid, & Handler (2009)	Low birth weight <2,500 g	2,292 g	2,486 g	*ns*
Robertson, Aycock, & Darnell (2009)	Birth weight	7.3 lb	7.5 lb	<.62

ns = not statistically significant.

individual care. The large randomized sample size enhances the validity and reliability of the study, especially when findings were statistically significant ($p < .05$).

Similar birth weights were found in a study among infants born to Hispanic women participating in CenteringPregnancy or traditional prenatal care (Robertson, Aycock, & Darnell, 2009). In another study set in a large, urban, public health clinic, no statistically significant difference was found between CenteringPregnancy and individual prenatal care participants in mean birth weight and gestational age at birth (Klima, Norr, Vonderheid, & Handler, 2009). Although the results of these two studies are mixed, most studies published between 1998 and 2009 that addressed birth weight and gestational age found better outcomes in group prenatal care than in individual prenatal care (Table 2).

Historical Patterns of Prenatal Care

In the United States, standards for the care of the pregnant woman are deeply rooted in the nation's historical medical model of care. In 1925, the U.S. Department of Labor Children's Bureau published a report entitled *Standards of Prenatal Care*, which described a prenatal schedule that is similar to today's recommended schedule for prenatal care: monthly visits with a physician for the first 6 months then visits with a physician every 2 weeks and, preferably, weekly during the last 4 weeks of pregnancy. At each visit, the 1925 report recommended that blood pressure, pulse, temperature, weight, and urinalysis be performed. Specific educational content "in the hygiene of pregnancy" (U.S. Department of Labor Children's Bureau, 1925, p. 3) included the following:

- Diet
- Exercise, rest, sleep, and recreation
- Clothing (including shoes)
- Baths and skin care
- Care of the bowels, kidneys, teeth, and breasts
- Intercourse during pregnancy
- Maternal impressions
- Hygiene of the home and preparing for home birth
- Mental hygiene

Today, if time permits, similar topics are discussed at a one-to-one prenatal visit with the health-care provider and patient in the traditional prenatal care model. Nearly a century ago, the traditional model of prenatal care was designed to prevent complications of preeclampsia (Novick, 2004). To augment traditional prenatal care, separate childbirth education classes are available to prospective parents. Although childbirth classes were once taught primarily by nurses with a focus on labor and birth, today's classes include various topics that may also be taught by physical therapists, social workers, teachers, or psychologists (Berger, 2009). To improve perinatal outcomes, care of the mother and fetus throughout pregnancy necessitates evaluation of past and current prenatal care delivery methods.

Current Trends in Prenatal Care

In health care overall, there is a current trend toward patient-centered care (e.g., medical homes or health-care homes). In group prenatal care, the focus is on the patient, and the curriculum is driven by patient need. Group prenatal care has the potential to reduce paternalism by strengthening the patient–provider relationship through partnering and trust (Massey, Rising, & Ickovics, 2006). Becoming partners in care is a newer concept in the delivery of health care.

How patients are taught has changed over time. The trend toward content-driven education is growing compared to past process-oriented formats (Moeller, Vezeau, & Carr, 2007). In individual (traditional) prenatal care, a set of concrete standards is followed based on gestation. Group prenatal care may follow a similar curriculum, but the content is easily modified by the facilitator based on participant feedback elicited at the beginning of each class. The model also is congruent with organizations that promote healthy pregnancies, such as Lamaze International (2012), by providing evidence-based education to childbirth educators, providers, and parents with similar goals of achieving positive maternal and infant outcomes.

Technology has changed the landscape of childbirth education and how patients receive their health education. Morton and Hsu (2007) describe how the Internet, books, and mass media have impacted birth-related information, behavior, and attitudes regarding pregnancy. Health-care facilities are exploring new ways to attract and teach pregnant women. Interactive computer-based prenatal instruction is on the increase in some clinics (Bailey et al., 2008). Using newer technological systems within the health-care setting may attract a younger population who may otherwise receive their prenatal education from friends. The 2006 *Listening to Mothers II* survey found that only 25% of mothers took childbirth classes, with most mothers reporting

exposure to childbirth education through television, rather than prenatal classes (Walker & Worrell, 2008). The current trend toward consumers accessing health information via technology, coupled with a societal need to receive information quickly, must be considered when assessing the need to modify how prenatal care and education are delivered.

Gaps in the Literature

In recent literature, more studies are comparing perinatal outcomes between individual (traditional) prenatal care and group prenatal care. Because CenteringPregnancy has been the group prenatal care model studied most extensively, positive outcome results may be generalized only to prenatal programs that choose to implement this model. Are there other models of group prenatal care? This review of the literature did not uncover studies of group prenatal care that did not use the CenteringPregnancy model.

Another gap in the literature is the lack of evidence that describes *how* group prenatal care produces better outcomes. Why do women in group prenatal care have larger babies and longer gestations? Does certain content lead to better outcomes? In analyzing the research studies, the model as a whole has been studied, but not particular aspects that may influence certain outcomes.

IMPLICATIONS FOR NURSING PRACTICE

For nurses, the evidence from most studies conducted within the past decade finds longer gestations and higher birth weights in babies born to mothers who participated in group prenatal care. This implication allows nurses to become involved in changing current prenatal care models. Group prenatal care promotes evidence-based practice and is safe and effective. The model reaches at-risk populations and fosters cultural competence through awareness of childbirth practices. Group prenatal care may be reimbursed by public and private insurances. Group prenatal care has the potential to deliver a multidisciplinary approach through the involvement of guest speakers, such as medical social workers, registered dieticians, and dental hygienists. Nurses may facilitate groups and practice in advanced nurse roles.

Healthy People 2020 lists two maternal, infant, and child health goals related to prenatal care. One goal is to increase the proportion of pregnant women who receive early and adequate prenatal care, and the other goal is to increase the proportion of women who attend a series of prepared childbirth classes (U.S. Department of Health and Human Services, 2009). The group prenatal care model meets both national objectives.

A group format allows more time for nurses to spend with patients. Facilitators can educate participants on sensitive issues (e.g., domestic abuse, HIV) and cultivate support and sharing of experiences among women (Ickovics et al., 2003). The nurse may advocate for the special needs of a pregnant adolescent in prenatal care program design. The group prenatal care model is affordable and can be designed to be accessible for teens who need to be seen after school (Grady & Bloom, 2004). With prenatal program attrition rates variable, nurses also play a vital role in being creative in how to reach and retain patients. Offering transportation vouchers, recruiting culturally competent facilitators, conducting groups at accessible sites, and offering family-friendly options such as childcare are options nurses can employ as patient advocates (Berman, 2006). As teachers, nurses play a pivotal role in the content delivered to patients.

Group prenatal care may have consequences that pose challenges for the nurse. Women who participate in group prenatal care may have different expectations for their care and may miss the one-on-one interaction experienced in individual prenatal care. Also, because many groups become close-knit, participants must be reminded of the Health Insurance Portability and Accountability Act of 1996 that prohibits the sharing of patient information (Reid, 2007). These challenges are easily overcome through communication and education.

CenteringPregnancy has been the focus of group prenatal care research and has the most data available when comparing outcomes to those of individual prenatal care. Because nurses play an integral role in prenatal education and group prenatal care, nursing research can expand further in analyzing the impact group prenatal care has on perinatal outcomes. Novick (2004) cited a wide range of issues related to the model, including the following: safety

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and effectiveness, impact on health behaviors (such as breastfeeding), cost-effectiveness, insurance coverage, and participant satisfaction. Findings from numerous studies suggest more research is needed in the comparison of individual prenatal care and group prenatal care, especially with larger sample sizes. Gagnon and Sandall (2007) reported that only 10% of women initially inquiring about classes were willing to be randomized. Research is difficult because many women are reluctant to be randomly assigned to a placebo or intervention group.

As reported earlier, the U.S. preterm birth and low birth weight rates are not improving. Nursing research has the potential to hypothesize, analyze, and evaluate *why* particular models of prenatal care produce better perinatal outcomes. Even though the CenteringPregnancy model of prenatal group care is occurring in more settings, there has been little research comparing the model to traditional prenatal care (Robertson et al., 2009). As newer models of prenatal care emerge and expand, as seen with group prenatal care, there will be more opportunities to study its impact on the mother and infant. Whatever role nurses can partake in research will progress the profession further and benefit patients.

CONCLUSION

Limited prenatal education for pregnant women in preparation for pregnancy, labor, and birth has a significant impact on perinatal outcomes and for the nurses caring for mother and baby. Today, nurses are often asked to do more with less. The most efficient systems that provide the best outcomes, based on evidence-based practice, should be in place within health-care organizations. As Klima (2009) aptly wrote, "While traditional prenatal care has served us well, racial and ethnic disparities and increasing rates of prematurity and low birth weight suggest we can do better" (p. 44). Nurse educators and nurse leaders must be innovative, creative, and visionary in today's chaotic health-care environment. Incorporating evidence into nursing practice necessitates an understanding of research synthesis.

Collaboration across disciplines benefits patients. Dating back to 1925, physicians recognized the importance of nursing's role in working collaboratively and assisting in the observation of the patient (U.S. Department of Labor Children's Bureau, 1925). Today, health-care provider appointment times are shorter. Group prenatal care encompasses roles that are within the scope of nursing. Nurses are able to perform prenatal care within advanced nurse roles that incorporate teaching–learning strategies to meet the needs of the mother and infant. Most importantly, nurses can have a significant impact in evaluating current prenatal care models. For perinatal outcomes to improve in the United States, nurses play a vital role in adopting newer models of perinatal education, such as the group prenatal care model, that are based on research evidence.

REFERENCES

Bailey, J. M., Crane, P., & Nugent, C. E. (2008). Childbirth education and birth plans. *Obstetrics and Gynecology Clinics of North America*, *35*(3), 497–509, ix. http://dx.doi.org/10.1016/j.ogc.2008.04.005

Baldwin, K. A. (2006). Comparison of selected outcomes of CenteringPregnancy versus traditional prenatal care. *Journal of Midwifery & Women's Health*, *51*(4), 266–272. http://dx.doi.org/10.1016/j.jmwh.2005.11.011

Beatty, K. (2004). Reflection on caring for a home care client using Kristen M. Swanson's Theory of Caring. *International Journal for Human Caring*, *8*(1), 61–64.

Berger, D. (2009). Change: A reflection of the past thirty years as a childbirth instructor. *International Journal of Childbirth Education*, *24*(1), 7–9.

Berman, R. O. (2006). Perceived learning needs of minority expectant women and barriers to prenatal education. *The Journal of Perinatal Education*, *15*(2), 36–42. http://dx.doi.org/10.1624/105812406X107807

Bloom, K. C. (2005). Use of the CenteringPregnancy Program in a school-based clinic: A pilot study. *Clinical Excellence for Nurse Practitioners*, *9*(4), 213–218.

Declercq, E. R., Sakala, C., Corry, M. P., & Applebaum, S. (2007). Executive summary. Listening to mothers II: Report of the second national U.S. survey of women's childbearing experiences. *The Journal of Perinatal Education*, *16*(4), 9–14. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2174380/pdf/JPE160009.pdf

DeVries, B., Darling-Fisher, C., Thomas, A. C., & Belanger-Shugart, E. B. (2008). Implementation and outcomes of group medical appointments in an outpatient specialty care clinic. *Journal of the American Academy of Nurse Practitioners*, *20*(3), 163–169. http://dx.doi.org/10.1111/j.1745-7599.2007.00300.x

Gagnon, A., & Sandall, J. (2007). Individual or group antenatal education for childbirth or parenthood, or both. *Cochrane Database of Systematic Reviews*, (3), CD002869. http://dx.doi.org/10.1002/14651858.CD002869.pub2

Grady, M. A., & Bloom, K. C. (2004). Pregnancy outcomes of adolescents enrolled in a CenteringPregnancy program. *Journal of Midwifery & Women's Health*, *49*(5), 412–420. http://dx.doi.org/10.1016/j.jmwh.2004.05.009

Ickovics, J. R., Kershaw, T. S., Westdahl, C., Magriples, U., Massey, Z., Reynolds, H., & Rising, S. S. (2007). Group prenatal care and perinatal outcomes: A randomized controlled trial. *Obstetrics and Gynecology*, *110*(2, Pt. 1),

330–339. http://dx.doi.org/10.1097/01.AOG.0000275284.24298.23

Ickovics, J. R., Kershaw, T. S., Westdahl, C., Rising, S. S., Klima, C., Reynolds, H., & Magriples, U. (2003). Group prenatal care and preterm birth weight: Results from a matched cohort study at public clinics. *Obstetrics and Gynecology*, *102*(5, Pt. 1), 1051–1057. http://dx.doi.org/10.1016/S0029-7844(03)00765-8

Kennedy, H. P., Farrell, T., Paden, R., Hill, S., Jolivet, R., Willetts, J., & Rising, S. S. (2009). "I wasn't alone"—a study of group prenatal care in the military. *Journal of Midwifery & Women's Health*, *54*(3), 176–183. http://dx.doi.org/10.1016/j.jmwh.2008.11.004

Klima, C. (2009). CenteringPregnancy: The benefits of group prenatal care. *Contemporary OB/GYN*, *54*(5), 40–49.

Klima, C., Norr, K., Vonderheid, S., & Handler, A. (2009). Introduction of CenteringPregnancy in a public health clinic. *Journal of Midwifery & Women's Health*, *54*(1), 27–34. http://dx.doi.org/10.1016/j.jmwh.2008.05.008

Koehn, M. (2008). Contemporary women's perceptions of childbirth education. *The Journal of Perinatal Education*, *17*(1), 11–18. http://dx.doi.org/10.1624/105812408X267916

Lamaze International. (2012). *About Lamaze: Core values*. Retrieved from http://www.lamazeinternational.org/CoreValues

Martin, J. A., Hamilton, B. E., Sutton, P. D., Ventura, S. J., Menacker, F., Kirmeyer, S., & Mathews, T. J. (2009). Births: Final data for 2006. *National Vital Statistics Reports*, *57*(7). Hyattsville, MD: National Center for Health Statistics. Retrieved from http://www.cdc.gov/nchs/data/nvsr/nvsr57/nvsr57_07.pdf

Massey, Z., Rising, S., & Ickovics, J. (2006). CenteringPregnancy group prenatal care: Promoting relationship-centered care. *JOGNN: Journal of Obstetric, Gynecologic, and Neonatal Nursing*, *35*(2), 286–294. http://dx.doi.org/10.1111/j.1552-6909.2006.00040.x

McEwen, M., & Wills, E. M. (2007). *Theoretical basis for nursing* (2nd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Moeller, A., Vezeau, T., & Carr, K. (2007). CenteringPregnancy: A new program for adolescent prenatal care. *American Journal for Nurse Practitioners*, *11*(6), 48–58.

Mooney, S. E., Russell, M. A., Prairie, B., Savage, C., & Weeks, W. B. (2008). Group prenatal care: An analysis of cost. *Journal of Health Care Finance*, *34*(4), 31–41.

Morton, C. H., & Hsu, C. (2007). Contemporary dilemmas in American childbirth education: Findings from a comparative ethnographic study. *The Journal of Perinatal Education*, *16*(4), 25–37. http://dx.doi.org/10.1624/105812407X245614

Mosby's medical dictionary (8th ed.). (2009). St. Louis, MO: Mosby.

Novick, G. (2004). CenteringPregnancy and the current state of prenatal care. *Journal of Midwifery & Women's Health*, *49*(5), 405–411. http://dx.doi.org/10.1016/j.jmwh.2004.06.001

Reid, J. (2007). CenteringPregnancy®: A model for group prenatal care. *Nursing for Women's Health*, *11*(4), 382–388. http://dx.doi.org/10.1111/j.1751-486X.2007.00194.x

Risica, P. M., & Phipps, M. G. (2006). Educational preferences in a prenatal clinic population. *International Journal of Childbirth Education*, *21*(4), 4–7.

Rising, S. S. (1998). Centering Pregnancy: An interdisciplinary model of empowerment. *Journal of Nurse-Midwifery*, *43*(1), 46–54. http://dx.doi.org/10.1016/S0091-2182(97)00117-1

Rising, S. S., & Senterfitt, C. (2009). Repairing health care: Building relationships through groups. *Creative Nursing*, *15*(4), 178–182. http://dx.doi.org/10.1891/1078-4535.15.4.178

Robertson, B., Aycock, D. M., & Darnell, L. A. (2009). Comparison of Centering Pregnancy to traditional care in Hispanic mothers. *Maternal and Child Health Journal*, *13*(3), 407–414. http://dx.doi.org/10.1007/s10995-008-0353-1

Skelton, J., Mullins, R., Langston, L. T., Womack, S., Ebersole, J. L., Rising, S. S., & Kovarik, R. (2009). CenteringPregnancySmiles™: Implementation of a small group prenatal care model with oral health. *Journal of Health Care for the Poor and Underserved*, *20*, 545–553. http://dx.doi.org/10.1353/hpu.0.0138

Tough, S. C., Siever, J. E., & Johnston, D. W. (2007). Retaining women in a prenatal care randomized controlled trial in Canada: Implications for program planning. *BMC Public Health*, *7*, 148–155. http://dx.doi.org/10.1186/1471-2458-7-148

U.S. Department of Health and Human Services. (2009). *Healthy people 2020 public meetings: 2009 draft objectives*. Retrieved from http://www.kpha.us/documents/2009documents/HP2020Objectives101509.pdf

U.S. Department of Labor Children's Bureau. (1925). *Standards of prenatal care. An outline for the use of physicians* (Bureau Publication No. 153). Retrieved from http://www.mchlibrary.info/history/chbu/20870-1925.pdf

Walker, D. S., & Worrell, R. (2008). Promoting healthy pregnancies through perinatal groups: A comparison of CenteringPregnancy® group prenatal care and childbirth education classes. *The Journal of Perinatal Education*, *17*(1), 27–34. http://dx.doi.org/10.1624/105812408X267934

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