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Adaptation to Cesarean Birth: Implementation of an International Multisite Study

Jacqueline Fawcett

University of Massachusetts - Boston

Cynthia Aber

University of Massachusetts - Boston

Marianne Weiss

Marquette University, marianne.weiss@marquette.edu

Susan Haussler

University of Massachusetts - Boston

Sheila Taylor Myers

OU Medical Center in Oklahoma City

See next page for additional authors

Authors

Jacqueline Fawcett, Cynthia Aber, Marianne Weiss, Susan Haussler, Sheila Taylor Myers, Charlette King, Jennifer Newton, and Virginia Silva

Integrating Practice, Teaching, and Research

Preface by Violet M. Malinski, RN; PhD

*Associate Professor & Director of the Graduate Program, Hunter-Bellevue School of Nursing,
Hunter College of the City University of New York*

This column showcases the work of Fawcett, Aber, Weiss, and others who provide a beautiful example of one way to integrate practice, teaching, and research. This international, multisite study, grounded in the Roy adaptation model, investigated a phenomenon of particular concern to nurses and childbearing women, as the rate of cesarean births is on the rise once again. It is easy to see how meaningful research can be when nurses in such varied settings pool their efforts to explore a topic of mutual concern and interest. The authors provide a stimulating discussion of the advantages that arise when this type of integration is accomplished and show how it can become a prototype for ongoing development of evidence-based practice.

Adaptation to Cesarean Birth: Implementation of an International Multisite Study

By Jacqueline Fawcett, Cynthia Aber, Marianne Weiss, Susan Haussler, Sheila Taylor Myers, Charlette King, Jennifer Newton, and Virginia Silva

The purpose of this column is to describe the implementation of an international multisite Roy adaptation model-based study of women's perceptions of and responses to cesarean birth. The need for the study arose from the concern that women's childbearing needs may not be met to their full satisfaction, especially if the infant is born by cesarean. Serendipity and networking played a part in the selection of four study sites in the United States (Boston, Milwaukee, Norfolk, Oklahoma City) and two in other countries (Finland, Australia). Data were collected by nursing students and staff nurses. Post-hoc consideration of the diversity of study sites revealed opportunities for examination of the influence of the contextual stimuli of culture and geographic region on the women's adaptation to cesarean birth. Strategies used to foster integration of teaching, practice, and research are discussed.

The purpose of this column is to describe the implementation of an international multisite Roy adaptation model-based study of women's perceptions of and responses to cesarean birth. The data collected at six sites are being used to extend a program of research that began in the

late 1970s and continued with periodic data collection into the 1990s (Fawcett, 1981; Fawcett & Burritt, 1985; Fawcett, Pollio, & Tully, 1992; Fawcett & Weiss, 1993; Reichert, Baron, & Fawcett, 1993).

The study has provided a research learning experience for undergraduate students in maternal-neonatal nursing courses, as well as the basis for one master's thesis and a master's comprehensive paper. The integration of research, teaching, and practice is a collaborative effort involving faculty and students at the University of Massachusetts–Boston, Marquette University, Hampton University, and Australia's Monash University. The study also has provided an opportunity for the integration of research and practice for faculty at the University of Tampere in Finland and for staff nurses at hospitals in Oklahoma and Finland.

Background

The need for the study arose from the concern that women's childbearing needs may not be met to their full satisfaction, especially if the infant is born by cesarean. Health-care professionals' interest in women's perceptions of and responses to cesarean birth was at a peak in 1988, when the cesarean birth rate reached the then all-time high of 24.7% (Clark & Taffel, 1995). Despite many efforts, the *Healthy People 2000* objective of reducing the cesarean birth rate to 15% was not achieved. Indeed, although the rate declined throughout the early and mid-1990s, to a low of 20.8% in 1996 (Martin, Park, & Sutton, 2002), the rate has increased steadily since then, to a new all-time high of 26.1% in 2002, the most recent year for which data are available (Martin et al., 2003). The increase in the cesarean birth rate has occurred regardless of race, ethnicity, age, or maternal medical condition (Menacker & Curtin, 2001). It is not surprising, then, that an objective to reduce the cesarean birth rate for low-risk women having no prior cesarean births to 15.5% has been included in *Healthy People 2010*. Given the recent increase in the cesarean birth rate and the concomitant decrease in the rate of vaginal birth after cesarean (Martin et al., 2003), it is unlikely that that objective will be met.

Past reductions in the cesarean birth rate had been accomplished primarily through changes in physicians' behaviors (Main, 1999). Nurses can, of course, encourage physicians to change their behaviors and support behavioral changes. Nurses can also implement nursing interventions that are associated with lower cesarean birth rates (Radin, Harmon, & Hanson, 1993). But more to the point of this study is that nurses can facilitate women's successful adaptation to the cesarean birth experience if they first understand women's perceptions of and responses to cesarean birth. Once women's perceptions of and responses to cesarean birth are understood, nursing interventions can be designed to facilitate optimal adaptation.

Conceptual-Theoretical-Empirical Structure

The study was guided by the Roy adaptation model (Roy & Andrews, 1999). This conceptual model of nursing depicts the individual as an adaptive system who interacts with constantly changing environmental stimuli. For the purposes of this study, the focal stimulus, which is the stimulus of immediate interest, was the type of cesarean birth, defined as planned or unplanned. The contextual stimuli, which are other stimuli that contribute to the effect of the focal stimulus, were represented in this study by the circumstances surrounding the cesarean birth. One contextual stimulus was either a primary or a repeat cesarean birth. In addition, post hoc consideration of the six sites at which data were collected revealed an opportunity for examination of the influence of two other contextual stimuli—culture and geographic region—on the women's adaptation to cesarean birth. Information about the variables representing the focal and contextual stimuli was recorded on a Background Data Sheet (BDS).

Individuals' responses to environmental stimuli are channeled through two coping mechanisms—the regulator and the cognator. The regulator coping mechanism, which deals with neural, chemical, and endocrine systems, was not considered in this study. The cognator coping mechanism, which deals with perceptual and information processing, learning, judgment, and emotion, was represented in the study by perception of the birth experience, which was defined as feelings about labor or preoperative procedures, delivery, and initial contact with the infant, and was measured by the Perception of Birth Experience Scale (Cranley, Hedahl, & Pegg, 1983; Marut & Mercer, 1979).

Responses to stimuli are manifested in four modes of adaptation. The physiological mode of adaptation emphasizes maintenance of the physiological integrity of the adaptive system and encompasses oxygenation, nutrition, elimination, activity and rest, immune processes and the integument, the senses, fluids and electrolytes, neurological function, and endocrine function. The self-concept mode focuses on psychic integrity and deals with perception of the physical self in terms of body image and body sensation, as well as perception of the personal self, including self-consistency, self-ideal, and the moral-ethical-spiritual self. The role function mode deals with social integrity by focusing on performance of activities associated with the various roles one enacts throughout life. The interdependence mode deals with social integrity by emphasizing behaviors underlying the development and maintenance of satisfying affectional and supportive relationships with significant others, as well as the provision and receipt of social support. The four modes of adaptation were represented in this study by women's responses to the events surrounding cesarean childbirth, as measured by the Cesarean Birth Experience Questionnaire

(Fawcett, 1981).

Implementation of the Study

The initial study in this program of research, which was conducted in the late 1970s, was the result of an invitation to contribute a chapter (Fawcett, 1980) about men's adaptation to the cesarean birth of their children to a book about the cesarean birth experience. The invitation came as the result of the publication of dissertation research, which focused on body image changes experienced by childbearing women and their partners (Fawcett, 1977). Serendipity and networking played large parts in implementation of the current study, which has involved four sites in the United States and sites in two other countries. All studies were conducted with local Institutional Review Board or Ethics Committee approval.

Site 1: OU Medical Center in Oklahoma City

The first current study site followed from an unexpected telephone call from Sheila Taylor Myers in the spring of 2000. Dr. Fawcett had known Dr. Myers since 1987, when Dr. Fawcett conducted a workshop at the University of Oklahoma, and already had collaborated with her on a study designed to develop the Inventory of Functional Status After Childbirth (Fawcett, Tulman, & Myers, 1988). Subsequently, Dr. Myers worked with staff nurses and nurse administrators to implement the study at OU Medical Center in Oklahoma City, Oklahoma.

Sites 2 and 3: University of Massachusetts Boston and Marquette University

Following Dr. Fawcett's conversation with Dr. Myers, she approached her University of Massachusetts Boston colleague, Cynthia Aber, to determine her interest in collaborating by offering her undergraduate students in the maternity and women's health nursing course an opportunity to conduct a comprehensive assessment of women's responses to cesarean birth. At that time, Dr. Fawcett had known Dr. Aber only since Dr. Fawcett joined the faculty at the University of Massachusetts–Boston (UMass Boston) in the fall of 1999. Currently, Drs. Aber and Fawcett are using the results of the assessment for research purposes.

When Dr. Aber agreed to collaborate on the study, Dr. Fawcett contacted Marianne Weiss at Marquette University in Milwaukee, Wisconsin, who indicated her interest in collaborating on the study. Dr. Fawcett had known Dr. Weiss since 1985, when Dr. Fawcett was a visiting professor in the doctoral program at the University of San Diego, and already had collaborated with her on two studies, one designed to develop the Inventory of Functional Status–Fathers (Tulman, Fawcett, & Weiss, 1993), and the other designed to examine cross-cultural responses to

cesarean childbirth (Fawcett & Weiss, 1993). The collaboration with Dr. Aber and Dr. Weiss and their undergraduate students actualized a dream of truly integrating teaching, research, and practice. An article about the integration was published in 2003 in the *Journal of Professional Nursing* (Fawcett, Aber, & Weiss, 2003).

Virginia Silva, a UMass Boston master's student, used some of the Marquette University site data for her comprehensive paper. Dr. Aber introduced Dr. Fawcett to Ms. Silva in the spring of 2000. The following fall, Ms. Silva asked Drs. Aber and Fawcett to serve as advisors for her comprehensive master's paper project. They suggested that she analyze and report the data from Marquette University; Ms. Silva completed a successful project in spring 2001 (Silva, 2001).

Site 4: Finland

Susan Haussler, another UMass Boston faculty member, was responsible for development of the study site in Finland. During the fall of 2000, Dr. Haussler was at the University of Tampere in Finland on a Fulbright Fellowship. During an e-mail conversation with Dr. Haussler, Dr. Fawcett mentioned the cesarean birth study that she was doing with Dr. Aber and Dr. Weiss. Dr. Haussler immediately discussed the study with her colleagues in the Department of Nursing Science, who indicated interest. Subsequently, they arranged for the collection of data by staff nurses at hospitals in Tampere and Helsinki, Finland.

Site 5: Hampton University

The fifth study site was the result of conversations Dr. Fawcett had with Dr. Bertha Davis and Dr. Shirley Gore, of Hampton University in Hampton, Virginia. Dr. Fawcett had met Dr. Davis in 1997, when Dr. Fawcett began to consult with the Hampton University nursing faculty about development of their doctoral program; Dr. Fawcett met Dr. Gore shortly thereafter. Dr. Davis and Dr. Gore mentioned the cesarean birth study to Charlette King, who subsequently used the data she collected at a hospital in Norfolk, Virginia, for her master's thesis (King, 2002).

Site 6: Monash University, Australia

Recently, another study site was implemented, this time in Australia, by Dr. Jennifer Newton, of Monash University in Frankston, Victoria, Australia. Dr. Fawcett had met Dr. Newton while at a conference in Stockholm, Sweden, in May of 2000. When Dr. Newton visited Boston two years later, she and Dr. Fawcett discussed the possibility of collaborating on the cesarean birth study. Dr. Newton's students began data collection in four hospitals in the fall of 2004.

Implications for Practice

The multisite study, which came about through serendipity and networking, has provided an opportunity to easily integrate teaching, practice, and research. Many years ago, Dr. Fawcett proposed that faculty should conduct research in the setting in which they find themselves. In particular, she proposed that faculty who are with students in practice settings should conduct their research with their students in those settings, whereas faculty who spend most of their time on the campus should conduct their research from that setting, offering students enrolled in research courses the opportunity to be research assistants, and negotiating with the faculty who teach the research courses to grant credit to the students for the research assistantships (Fawcett, 1978, 1979). As the result of the multisite study, the authors of this column have found that integrating teaching, practice, and research occurs when faculty members structure their classroom and practicum teaching activities within the context of research questions, teach what they have learned from practice and research, and use their teaching and practice activities as the basis for their own and their undergraduate and graduate students' research projects. In the practice setting, integration occurs when staff nurses at the bedside incorporate research activities into their practice. When integration occurs, we have observed that staff nurses' conception of professional responsibility becomes dynamic.

We have found that nursing students and staff nurses better understand the cesarean birth study when they recognize the similarity between the steps of the nursing practice process and the steps of the nursing research process. Accordingly, we help nursing students and staff nurses to understand that the results of nursing assessment comprise baseline research data; that the labels used to summarize the patient's health status represent the statement of the problem to be studied; that goal setting represents the hypothesis that specifies the desired nurse-sensitive outcome and the means to achieve that outcome; that the desired outcome is the dependent variable; that the means to achieve that outcome is the independent variable; that implementation refers to the intervention, which is the independent or experimental treatment variable, and that evaluation refers to judgments about the achievement of the nurse-sensitive outcome, that is, the dependent variable.

We also help nursing students and staff nurses to understand that written or computerized documentation of each step of the nursing practice process provides the actual data from which a conclusion regarding the hypothesis may be drawn. Thus, paraphrasing Wood's (1978) discussion of casework processes and social work research, "The processes of [nursing practice] . . . are exactly the same processes as those of research" (p. 454). And, as Rolfe (1993) pointed out, nurses can practice and conduct research at the same time.

Research Instruments and Assessment Tools

Information gathered within the context of the nursing practice process can more easily be used as research data if a specific and consistent format is used for each step of the nursing practice process (see Jairath & Fain, 1999). For example, information gathered in the assessment step of the nursing practice process can more easily be converted to research data if systematic assessment tools are used. Conversely, research instruments sometimes can be used as assessment tools.

For the multisite study, we employed three research instruments that Dr. Fawcett had used for her earlier cesarean birth studies as assessment tools. The three instruments offered the students and staff nurses diverse approaches for assessment. The BDS, which is a structured questionnaire, was used to record demographic and perinatal information. The BDS format facilitated understanding of how to gather specific information from a cesarean-delivered woman and from her medical record. The Perception of Birth Experience Scale (POBES) is a summated rating scale that consists of many questions about the woman's perceptions of her experience of unplanned or planned cesarean delivery (Cranley et al., 1983; Marut & Mercer, 1979). Each question is rated by the woman on a scale ranging from 1 (*not at all*) to 5 (*extremely*). The POBES facilitated understanding of assessment by means of structured questions with fixed choice responses. The Cesarean Birth Experience Questionnaire (CBEQ), which is a semistructured interview guide, consists of five open-ended questions asking the woman how she felt physically and emotionally when she found out she was to have a cesarean birth, during the delivery, and after the baby was born; her greatest needs during the cesarean birth experience; and what could have been done and by whom to improve the experience (Fawcett, 1981). Use of the CBEQ facilitated understanding of assessment with open-ended questions and enhanced ability to record verbatim responses.

The data for the multisite study have been collected by nursing students and staff nurses in hospitals. In addition, UMass Boston and Marquette University students also collected data via post-hospital discharge telephone calls and home visits. The telephone calls and home visits are especially advantageous because these approaches help students to understand how follow-up postpartum nursing care can be accomplished relatively easily and inexpensively.

There are many ways that faculty can extend their research through collaboration with colleagues locally, regionally, nationally, and internationally. Locally, other projects that also integrate research, teaching, and practice provide opportunities within undergraduate clinical nursing course teaching teams for collaboration and team building. Although integrating research

throughout the curriculum typically is a goal of undergraduate nursing programs, clinical instructors may have difficulty identifying learning experiences in the real world of nursing practice that allow students to see the integration of research with teaching and practice. Thus, a study developed and implemented collaboratively with all members of a clinical course teaching team provides a mechanism for introducing students to all aspects of the research process, including review of the conceptual and theoretical base for the study, the available evidence, and research methods for addressing practice questions, as well as interpretation and dissemination of findings. Using this approach, a research-focused faculty member can guide the clinical instructors as they help the students engage in the research process, using the conceptual, theoretical, and evidence base in pre and post-conference care planning, and discovering the parallel nature of the research and nursing practice processes.

Furthermore, inasmuch as clinical instructors frequently are master's-prepared nurses who perform the dual roles of clinical instructor and nurse clinician or advanced practice nurse, participation in projects that integrate research, teaching, and practice helps those nurses to advance in both roles. In addition, healthcare agencies benefit from the insights students and their instructors bring to the practice setting.

Another local opportunity is for multilevel collaboration within nursing programs. Faculty could collaborate with doctoral students who may have access to different populations than the faculty member. Doctoral students also could have valuable integrated teaching and research practicum experiences as they work with clinical instructors and their students in supervising all aspects of the research-based learning assignment. Master's program students could also be involved with individual clinical groups, conducting clinical conferences to link the concepts of research and clinical data collection to real clinical care situations. Moreover, faculty may find commonalities with colleagues or perhaps stimulate a new interest in a colleague when presenting the study at a brown bag lunch or college-wide forum. This is especially true when those from academia partner with hospital personnel and are involved in joint meetings to plan study activities and report outcomes. Creating an environment of inclusion, as well as being receptive to new ideas and approaches, can open the door to working together.

The approach we have used also could provide a framework for collaboration among schools of nursing within one community or among nurses who are members of a local chapter of a specialty organization, such as the Association of Women's Health, Obstetric, and Neonatal Nurses. In addition, when presenting research at local, regional, national, or international conferences, the researcher might stimulate the audience by the presentation and subsequent discussion and then ask, "Would you like to replicate this study in your area and then compare

your findings with mine?"

Another way to become involved in a multisite study is to participate in discussion of a study at a special interest group (SIG) meeting of a nursing society. For example, the Eastern Nursing Research Society (ENRS) and other regional nursing research societies have SIGs, such as the ENRS Family Research Interest Group. SIGs typically provide opportunities for colleagues interested in the same topics to meet prior to and during annual conferences and to engage in dialogue through e-mail and conference calls throughout the year. Informal conversations with SIG members can plant the seeds for collaboration on various studies similar to the one described in this column. Still another way to involve colleagues, especially international colleagues, is by sharing the work while visiting or studying abroad or when hosting nurse scholars from various countries and offering an opportunity to collaborate on the study in the colleague's home country.

The multisite cesarean birth study serves as a prototype that can guide the integration of teaching, practice, and research activities of nursing faculties, students, and hospital staff worldwide, as well as faculties, students, and practitioners from other disciplines having a practice component, such as psychology, education, engineering, and social work. The study also serves as a prototype for the development of evidence-based practice. For example, analysis of the rich data from the CBEQ yielded evidence that this simple assessment tool provides an opportunity for women to discuss their cesarean birth experiences in detail. Those data now can be used to develop nursing interventions that will facilitate women's adaptation to cesarean birth.

Incorporating hospital staff in studies can increase their opportunities to question practice and enhance subsequent change. The research paradigm emphasizes questioning, whereas the practice paradigm emphasizes a responsibility to know. Conducting an interview within the research paradigm can offer novice and experienced staff the opportunity to hear women's stories in a way that busy care duties may preclude. Offering women an opportunity to tell their stories of cesarean childbirth to a nurse may promote postpartum adaptation and may even reduce the incidence of psychosocial morbidity, including postpartum depression (Affonso, 1977; Lavender & Walkinshaw, 1998).

The data collected at the various sites should enhance existing knowledge of cross-cultural responses to cesarean childbirth (Cummins, Scrimshaw, & Engle, 1988; Fawcett & Weiss, 1993; McClain, 1990; Mercer & Stainton, 1984; Sandelowski & Bustamante, 1986). The data also may contribute to the understanding of similarities and differences in the way women from diverse geographic regions in the United States respond to cesarean birth. The data from Boston, Milwaukee, Norfolk, and Oklahoma City also will allow us to examine the influence of variations in the cesarean birth rate on perceptions of and responses to cesarean birth, because

Oklahoma and Massachusetts have relatively high cesarean birth rates (28.1% and 28%, respectively, in 2002); Wisconsin, a relatively low rate (20.6% in 2002); and Virginia (26.8% in 2002), a rate between those of Oklahoma and Massachusetts and Wisconsin (Martin et al., 2003).

In conclusion, the value of serendipity and networking in the implementation of the multiple sites for the cesarean birth study must be underscored. Although the international multisite study is the culmination of a vision about integrating teaching, practice, and research that has its origin in what Dr. Fawcett learned during doctoral study in the mid-1970s, it could not have happened without the formal and informal networking that has occurred throughout her postdoctoral career and the serendipitous conversations with her colleagues in recent years.

We realize that what we have accomplished takes considerable time, effort, and determination. But in the words of Deborah Meier (as cited in Kent, 2002, p. 2), a MacArthur Award recipient, "We can make more things that seem impossible happen if we have the courage to go after them."

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