Perceived Control and Maternal Satisfaction with the Childbirth Experience

By

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Abstract

The quality of the childbirth experience, particularly whether the mother perceives a sense of control over the birth environment, can significantly impact postpartum adjustment. Although maternal "satisfaction" is a common outcome variable in childbirth research, studies have not adequately distinguished satisfaction from affective reactions to birth. Furthermore, adequate measures of perceived control and maternal satisfaction are lacking. Drawing from a person-environment fit theory of satisfaction, the current study examined the validity of two new instruments to assess perceived control over the childbirth environment (PCCh) and satisfaction with the childbirth experience (SWCh). Items constructed from existing measures and qualitative data were administered to 187 women who had given birth to a healthy infant in the last four months. Exploratory factor analysis supported single-factor structures for the PCCh and the SWCh, with high internal consistency reliability for both instruments (alpha > .90). The PCCh was significantly correlated with childbirth self-efficacy, satisfaction, and external control. The SWCh was only moderately correlated with positive and negative affect, childbirth self-efficacy, and external control. Low scores on both instruments were significantly associated with postpartum stress symptoms. Preliminary analyses revealed that perceived control accounted for more variance in childbirth satisfaction than obstetric variables such as labor pain, duration of labor, obstetric complications, and having an unplanned cesarean section. Results of these analyses are presented with recommendations for future development and clinical use of the PCCh and SWCh.

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I am fortunate to have a wonderfully supportive family who has supported me in all of my endeavors. The milestones and achievements of graduate school would not mean nearly as much without these people to share in it. I want to thank Carolan and Amanda especially, for each supporting me from a distance with an uncanny ability to turn frustration into laughter with barely an utterance. To Carolan, for making every effort to be "with" me in every sense, I could not feel more privileged or honored.

This dissertation is dedicated to my parents, Gregory and Rebecca Stevens. They taught me to value discipline, perseverance, and courage. I am grateful for their gift of love and acceptance, and will always be humbled by their admiration.

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Introduction

Theoretical Framework and Aims

Although childbirth typically concludes within a single day, women often remember their experiences vividly, even decades later (Simkin, 1991, 1992). Health professionals have long understood that the childbirth process can be unpredictable. However, given a healthy outcome, the extent to which the birth *environment* supports a woman's medical and psychological needs may have a major role in determining whether she is satisfied with the experience. Person-environment fit (PE) theory supports this hypothesis, proposing that the degree of match between an individual and her environment determines satisfaction of needs and subsequent positive adjustment (Reich, Zautra, & Manne, 1993).

There are many factors that contribute to childbirth satisfaction and postpartum adjustment; one important determinant may be the "fit" between a woman's desire for control of the birth environment and the degree to which she perceives that the experience was congruent with her preferences. The purpose of this study was to establish the construct validity of two new instruments designed to assess perceived control of the birth environment and maternal satisfaction with the overall birth experience using exploratory factor analysis.

Clinical Significance of the Childbirth Experience

The quality of the childbirth experience has important implications for maternal health during the postpartum period. Recent evidence suggests that symptoms of posttraumatic stress (PTSD) following childbirth are not uncommon (Ayers et al., 2008). Up to 3% of postpartum samples meet full criteria for PTSD while up to 30% of samples report sub-clinical PTSD symptoms (Ayers & Pickering, 2001; Creedy, Shochet, & Horsfall, 2000; Czarnocka & Slade, 2000; Soet, Brack, & Dilorio, 2003). Surprisingly, neither obstetric

complications nor fear for the infant's well-being accounts for all the variance in the PTSD symptoms reported in these studies. Obstetric intervention, perception of inadequate care, high levels of pain in the first stage of labor, negative interactions with medical staff, low levels of social support, and lack of perceived control have also been found to contribute to these symptoms (e.g., Adewuya, Ologun, & Ibigbami, 2006; Cigoli, Gilli, & Saita, 2006; Soderquist, Wijma, & Wijma, 2002). These findings suggest that a medically uncomplicated birth does not necessarily preclude symptoms of psychological distress.

Although the incidence of clinical PTSD is low, women's negative perceptions of birth are relatively common and have been found to persist over long periods of time (Rijnders et al., 2008). These experiences have been associated with increased risk of postpartum depression, fear of subsequent birth and even reduced willingness to have another baby (Gotvall & Waldenstrom, 2002; Righetti-Veltema, Conne-Perreard, Bousquet, & Manzano, 1998). Maternal health researchers emphasize the importance of assessing women's evaluations of their birth experiences in order to identify the medical and psychosocial factors that contribute to poor outcomes (Waldenstrom et al., 1996). The goal of research on women's experiences of birth has been to identify ways to improve maternal healthcare delivery, ultimately creating more individualized care. Individualized care is an important practical derivative of PE fit theory, whereby treatment is tailored to meet a patient's physiological and psychological needs.

Throughout the literature, women's evaluations of birth are either implicitly or explicitly described in terms of childbirth satisfaction. Thus, satisfaction with birth has become an important outcome variable in its own right. A major limitation of the research, however, is that a uniform theoretical model of childbirth satisfaction is lacking. Without a

clear definition of satisfaction, it is difficult to derive a meaningful interpretation of extant findings.

Satisfaction: Definitions and Theoretical Background

Across multiple domains (e.g., healthcare, subjective well-being), satisfaction has predominantly been conceptualized in terms of person-environment fit. Person-environment fit (PE) models originated with Kurt Lewin's (1936) theory, which defined human behavior as a function of both individual and environmental factors. The PE model of satisfaction has been conceptualized in two distinct ways, as an affective response or a cognitive evaluation. For instance, in some cases patient satisfaction with healthcare has been defined as an affective reaction to a variety of aspects of healthcare delivery (Hulka & Zyzanski, 1982; Hulka, Zyzanski, Cassel, & Thompson, 1970; Linder-Pelz, 1982; Ware & Snyder, 1975). In other cases, satisfaction has been defined as the cognitive evaluation of outcomes compared with the patient's ideal (Ross, Frommelt, Hazelwood, & Chang, 1987; Ross, Sinacore, Stiers, & Budiman-Mak, 1990). Other healthcare satisfaction research integrates both affective reactions and cognitive evaluations (Pascoe, 1983). Whether a model of satisfaction emphasizes affect or cognition, most researchers seem to agree that satisfaction involves both what the patient expects or desires and what the healthcare environment delivers, i.e., PE fit.

Affective and cognitive applications of PE fit theory highlight an important question. Is satisfaction an affective response or a cognitive evaluation? Subjective well-being (SWB) theory argues for a cognitive definition, defining life satisfaction as the cognitive evaluation of the match between external circumstances and an individual's own standards (Pavot & Diener, 1993; Shin & Johnson, 1978). Factor analytic data illustrate that affective indexes of well-being and life satisfaction represent distinct, moderately correlated constructs (Hamilton

et al., 2007; Larsen, Diener, & Emmons, 1985). Affective reactions to circumstances are important. However, “satisfaction” and “affect” are not isomorphic and should be assessed separately. The following section illustrates that the childbirth outcome literature does not define satisfaction consistently.

Satisfaction with Childbirth

In order to review the childbirth satisfaction literature from a theoretical perspective, extant definitions of satisfaction were extracted from the descriptions of outcome measures in postpartum surveys published from 1980 to 2008. Original articles were identified from an electronic search of childbirth outcome literature that focused specifically on maternal satisfaction. Reports were excluded if they included samples of participants delivering only by cesarean section, if reports only assessed satisfaction with a specific perinatal care variable (e.g., pain relief), or if the report focused on women’s views of their own behavior. Because no study clearly conceptually defined satisfaction, studies were not excluded from the review if they did not explicitly use the term “satisfaction.” The sample data and outcome measures of the 24 studies included in the literature review are presented in Table 1.

As shown in Table 1, satisfaction assessments do not reflect a uniform conceptualization of satisfaction. For example, several studies did not distinguish between “satisfaction” and “positive” versus “negative” experiences. The method of defining satisfaction seems to imply that a “satisfying” experience is synonymous with a “positive” experience and vice versa. Furthermore, it is unclear from these studies whether the outcome variables are meant to convey an emotional response to birth, an evaluation of the birth, or both.

Table 1

Childbirth Satisfaction Studies

Study	*Methods*	*Outcome Measures*	*Satisfaction Assessment*
Kirke (1980) *Ireland*	In hospital post-delivery structured interview, N=210	Feelings about procedures, being left alone during labor	Question: Would you return to the same hospital or go to another hospital for maternity care on a future occasion?
Morgan, Bulpitt, Clifton & Lewis (1982) *UK*	In-hospital interviews, N=1000; Portion of sample (n=626) surveyed again with postal questionnaire	VAS for pain intensity, VAS for experience at 1 year, specific sources of dissatisfaction	Question: Were you satisfied with your experience?: "yes," "no," "don't know." At one year, rate experience from "0" (totally alright) to "100" (absolutely awful).
Sullivan & Beeman (1982) *US*	State-wide postal survey mailed 3 months PP, N=1900	Caregiver-patient communication, preferences for and experience of medical procedures, overall evaluation of care	Likert scale items to assess satisfaction with communication and overall care (very dissatisfied to very satisfied)
Jacoby (1987) *UK*	Postal survey mailed to random sample at 4 mos. PP, N=1508	Preferences for and experience of obstetric procedures, ambulation, presence of father, holding baby post delivery, overall satisfaction with L/D management	Question: Was your labour and delivery managed as liked; managed as liked in some ways but not others; or not managed as liked?

* Study reported psychometric data; PP= postpartum.

Table 1 Continued.

Study	*Methods*	*Outcome Measures*	*Satisfaction Assessment*
Drew, Salmon, & Webb (1989) *UK*	In hospital survey using items derived from interviews, staff suggestions, N=183	One survey containing items pertaining to physical environment, information, staff communication, support	Patients rated items according to "importance for a mother's satisfaction with her care" on a 7-point scale
Seguin, Therrien, Champagne & Larouche (1989) *Canada*	Postal survey mailed at 4-7 mos. PP, N=938	Experience of delivery in relation to expectations, medical services, nursing care, decision-making, information received, physical environment	Likert scale items to assess satisfaction with components of overall birth experience (very dissatisfied to very satisfied)
Green, Coupland, & Kitzinger (1990) *UK*	Prospective survey, postal questionnaires mailed during pregnancy and 6 wks. PP, N=1150	Demographics, attitudes, knowledge and expectations; PP: experience, fulfillment, satisfaction, and emotional well-being	Rating scale (0-10) to assess overall satisfaction; Items to assess feelings about major/minor intervention, coping, and staff care
Kyman (1991) *US*	Postal survey mailed to primiparous mothers participating in childbirth prep classes N=177	Demographics, obstetrical interventions, maternal satisfaction	12 adjective pairs presented in semantic differential format e.g. positive-negative, pleasant-unpleasant, satisfying-unsatisfying
Salmon & Drew (1992) *UK*	In-hospital survey, N=104	Demographics, method of delivery, use of induction, multidimensional assessment of childbirth experience	20 Likert scale items asking how women felt about labor and delivery; e.g. "satisfied," "delighted," "disappointed."

* Study reported psychometric data; PP= postpartum.

Table 1 Continued.

Study	*Methods*	*Outcome Measures*	*Satisfaction Assessment*
Quine, Rutter, & Gowen (1993) *UK*	Prospective study including surveys and post-delivery interviews, N=59	Childbirth preparation, satisfaction with information and support, expectations of pain and control, perceived pain, stress, infant behavior, and satisfaction	5-point rating scale to assess satisfaction from very satisfied to very dissatisfied
Brown & Lumley (1994) *Australia*	Postal survey mailed to maternity hospital and home-birth patients, N=790	Medical history, demographics, circumstances of birth, satisfaction with care	Question: Do you feel your labor and delivery were: managed as liked; managed as liked in some ways but not others; or not managed as liked?
Ranta et al. (1995) *Finland*	Prospective study: data collected during pregnancy, in hospital, and during PP period	Method of delivery, interventions, information/expectations for pain relief, pain experience, cooperation between patient and midwife, overall satisfaction	Question: Were you satisfied with the care of your childbirth in the delivery room? 3 response options from very satisfied to dissatisfied
Knapp (1996) *US*	Prospective study; survey* data collected in 3rd trimester and 2 wks PP, N=80	Control expectancies, perceived control, evaluation of labor and delivery experience	*Labor/Delivery Evaluation Scale:* 10 adjective pairs, semantic differential format
Waldenstrom et al. (1996) *Sweden*	In hospital survey, N=268	Pain, anxiety, freedom to express feelings, sense of involvement, satisfaction with self and support from caregivers, overall satisfaction	Single item to assess overall satisfaction with the birth on 7-point scale; Open-ended question to assess factors that patients believe affected birth experience

* Study reported psychometric data; PP=Postpartum

Table 1 Continued.

Study	*Methods*	*Outcome Measures*	*Satisfaction Assessment*
Hung, Hsu, & Lee (1997) *China*	In-hospital survey*, N=114	Hospital environment, support, pain management, information, satisfaction	5-point Likert items of consumer satisfaction with health services received during labor and delivery
Geary, Fanagan, & Boylan (1997) *Ireland*	Survey distributed to patients on day of discharge, N=520	Demographics, labor length, use of pain relief medications, satisfaction with pain relief and labor care	VAS ratings (0-10 scale) for satisfaction with pain relief and care in labor
Brown & Lumley (1998) *Australia*	Cross-sectional study; surveys mailed to patients 6-7 mos. PP, N=1336	Demographics, medical history, delivery information, perceived support, perceived involvement in process, women's overall views of care	Question: On balance, thinking about what happened to you and what the midwives and/or doctors did, how would you describe your care in labour and birth?
Waldenstrom (1999) *Sweden*	Prospective survey of women within RCT of birth center vs. routine care; survey* data collected in pregnancy and 2 mos. PP, N=1111	Demographics, expectations for birth, anxiety, control expectancy, labor/delivery info, perceptions of pain, anxiety, involvement, and support during labor, and overall satisfaction	Single item rating overall experience of birth on 7-point scale from very negative to very positive
Windridge & Berryman (1999) *UK*	Home interviews at 4 mos. PP, N=99	Demographics, medical information regarding labor and delivery, postpartum depression;	Single item rating scale (0-100)

* Study reported psychometric data; PP= postpartum.

Table 1 Continued.

Study	*Methods*	*Outcome Measures*	*Satisfaction Assessment*
Waldenstrom et al. (2004) *Sweden*	Longitudinal cohort study; surveys administered during pregnancy, 2mos. PP, & 1 yr. PP, N=2541	Demographics, obstetric data, support, expectations, interventions, quality of caregivers, satisfaction with aspects of intrapartum care, overall satisfaction with experience	Single item 7-point rating scale for comprehensive assessment of birth from very negative to very positive
Goodman, Mackey, & Tavakoli (2004) *US*	Survey* administered post delivery prior to discharge, N=60	Demographics, childbirth preparation, expectations, pain, perceived control, satisfaction with specific aspects of childbirth and overall satisfaction rating	*Mackey Childbirth Satisfaction Rating Scale:* 34-item scale containing 5 subscales and a global evaluation, 5-point Likert items
Christiaens & Bracke (2007) *Belgium/ Netherlands*	Prospective; surveys* collected at 30 wks. & 2 wks. PP, N=605	Match between expectations and experience, self control in labor, self-efficacy, delivery method, satisfaction	*Mackey Childbirth Satisfaction Rating Scale:* 34-item scale containing 5 subscales and a global evaluation, 5-point Likert items
Zasloff, Schytt, & Waldenstrom (2007) *Sweden*	Longitudinal cohort study; surveys* administered during 2nd trimester & 2 mos. PP, N=2762	Demographics, obstetric data, emotional well-being during pregnancy, expectations, preferences for intervention, satisfaction with care and support during childbirth	5-point rating scale for satisfaction with intrapartum care (very dissatisfied to very satisfied); 5-point rating scale for childbirth difficulty (very difficult to very easy)
Bryanton et al. (2008) *Canada*	In-hospital survey*, N=652	Demographics, obstetric data including delivery method, support, pain, self-efficacy, expectations, involvement, satisfaction	*Questionnaire Measuring Attitudes About Labor and Delivery*: 29 5-point Likert items to assess degree to which birth is perceived as a positive or negative experience

* Study reported psychometric data; PP= postpartum.

Specific assessments of satisfaction varied widely across studies. One early study regarded a patient's willingness to return to the same hospital for a future delivery as an indication of satisfaction (Kirke, 1980). Several studies asked patients to rate their overall satisfaction on a single Likert-type or visual analogue scale (Geary, Fanagan, & Boylan, 1997; Green, Coupland, & Kitzinger, 1990; Quine, Rutter, & Gowen, 1993; Ranta et al., 1995; Waldenstrom, 1999; Waldenstrom et al., 1996; Waldenstrom et al., 2004; Windridge & Berryman, 1999; Zasloff, Schytt, & Waldenstrom, 2007). Two studies also used a single item that asked patients whether their labor was managed as they wanted (Brown & Lumley, 1998; Jacoby, 1987). Multi-item questionnaires asked patients to report their attitudes or emotional responses (e.g., joyful, frightening, disappointing, pleasant) to the birth experience (Bryanton, Gagnon, Johnston, & Hatem, 2008; Knapp, 1996; Kyman, 1991; Salmon & Drew, 1992). The Mackey Childbirth Satisfaction Rating Scale uses a 5-point scale and asks patients to rate their overall satisfaction with childbirth and satisfaction with specific aspects of medical care; however, studies using this scale do not define "satisfaction," nor do they provide a theoretical framework for the constructs being assessed (Christiaens & Bracke, 2007; Goodman, Mackey, & Tavakoli, 2004). Thus, extant outcome measures appear to be both atheoretical and inconsistent throughout the literature.

Lack of construct specificity limits the information that can be gained from these measures. It appears that some researchers have conceptualized satisfaction as an emotion or affective response while others regard satisfaction as a cognitive evaluation of whether the birth experience conformed to a patient's standards. Few (seven) studies reported psychometric data on the measures used, thus the reliability and validity of these measures is largely unknown (Bryanton et al., 2008; Christiaens & Bracke, 2007; Goodman, Mackey, &

Tavakoli, 2004; Hung, Hsu, & Lee, 1997; Knapp, 1996; Waldenstrom, 1999; Zasloff, Schytt, & Waldenstrom, 2007). None of the studies used a psychometrically tested, theoretically based instrument to assess maternal satisfaction with childbirth, and to the author's knowledge, no such measure currently exists.

Correlates and Predictors of Childbirth Satisfaction

Notwithstanding the limitations of these outcome measures, the literature has identified several aspects of the birth experience that have been consistently associated with positive or satisfying experiences. Tables 2 and 3 summarize the factors that have been significantly correlated with, or significant predictors of, constructs that are related to satisfaction. These variables can be categorized as biomedical components of the childbirth process (i.e., obstetric complications, method of delivery, pain, length of labor) or as psychosocial aspects of the birth environment. Overall, the literature suggests that increased use of obstetrical interventions (e.g., instrumental delivery, cesarean section) are associated with lower "satisfaction" and that quality of medical care, perceived control, social support during labor, and expectancy confirmation are the most consistent predictors of a high degree of "satisfaction."

A Comprehensive Model of Childbirth Satisfaction

No study to date has organized predictors of childbirth satisfaction into a comprehensive biopsychosocial model, thus little is known about the relationships among the psychosocial predictors or how they interact with obstetric variables. For instance, it is unclear whether increased use of obstetric interventions leads to lower satisfaction because it is associated with a longer duration of labor, less positive maternal-infant medical outcomes, more pain, or because the interventions deviate from the mother's expectations.

Table 2

Biomedical Correlates of Maternal Satisfaction

Study	*Medical Variables*		
	Complications	Obstetrical Interventions/ Method of Delivery	Pain/Duration of Labor
Kirke (1980) [b]	--	**ns**	--
Morgan et al. (1982) [a]	--	**X**	**X**
Jacoby (1987) [b]	--	**X**	--
Drew, Salmon, & Webb (1989)[a]	--	**ns**	--
Seguin et al. (1989)[b]	**X**	**ns**	**X**
Green, Coupland, & Kitzinger (1990)[a]	--	**X**	--
Kyman (1991)[a]	--	**X**	--
Salmon & Drew (1992) [a]	--	**X**	--
Brown & Lumley (1994)[b]	--	**X**	**X**

Note. X = significant correlation; a = Study assessed satisfaction with childbirth experience; b = Study assessed satisfaction with maternity care; -- = Not assessed as correlate of satisfaction; ns = Not significant.

Table 2 Continued.

Study	*Medical Variables*		
	Complications	Obstetrical Interventions/ Method of Delivery	Pain/Duration of Labor
Ranta et al. (1995) [a]	--	**X**	**ns**
Waldenstrom et al. (1996)[a]	--	**X**	**X**
Geary, Fanagan, & Boylan (1997) [b]	--	**X**	**ns**
Brown & Lumley (1998) [a]	--	**X**	**X**
Waldenstrom (1999)[a]	**X**	**X**	**X**
Waldenstrom et al. (2004)[a]	**X**	**X**	**X**
Goodman, Mackey, & Tavakoli, (2004)[a]	--	--	**X**
Christiaens & Bracke (2007)[a]	--	**X**	**X**
Bryanton et al. (2008) [a]	**X**	**X**	**X**

Note. X = significant correlation; a = Study assessed satisfaction with childbirth experience; b = Study assessed satisfaction with maternity care; -- = Not assessed as correlate of satisfaction; ns = Not significant.

Table 3

Psychosocial Correlates of Maternal Satisfaction

Study	*Demographic Variables*			*Psychosocial Variables*			
	Age	SES	Parity	Quality of Caregivers	Control/ Information	Social Support	Expectations vs. Experience
Kirke (1980) [b]	**ns**	**ns**	**ns**	**X**	--	**X**	--
Sullivan & Beeman (1982) [b]	--	--	--	**X**	**X**	**X**	**X**
Jacoby (1987) [b]	--	--	--	**X**	**X**	**X**	--
Drew, Salmon, & Webb (1989)[a]	--	--	--	--	**X**	**X**	--
Seguin et al. (1989)[ab]	--	**ns**	**ns**	**X**	**X**	--	--
Green, Coupland, & Kitzinger (1990)[a]	--	--	**X**	--	**X**	--	**X**
Salmon & Drew (1992) [a]	--	**ns**	**ns**	--	--	--	--
Quine, Rutter & Gowen (1993)[a]	**X**	**X**	--	--	**X**	**X**	**X**
Brown & Lumley (1994)[b]	**ns**	**ns**	**X**	**X**	**X**	--	--
Ranta et al. (1995) [a]	--	--	**ns**	--	--	--	--

Note. X = significant correlation; a = Study assessed satisfaction with childbirth experience; b = Study assessed satisfaction with maternity care; -- = Not assessed as correlate of satisfaction; ns = Not significant.

Table 3 Continued.

Study	*Demographic Variables*			*Psychosocial Variables*			
	Age	SES	Parity	Quality of Caregivers	Control/ Information	Social Support	Expectations vs. Experience
Knapp (1996) [a]	--	--	--	--	**X**	--	--
Waldenstrom et al. (1996)[a]	**ns**	--	**ns**	**X**	**X**	**X**	**X**
Hung, Hsu, & Lee (1997) [b]	--	--	--	**X**	--	**X**	--
Geary, Fanagan, & Boylan (1997) [b]	--	--	**ns**	**X**	--	--	--
Brown & Lumley (1998) [b]	**ns**	**X**	**X**	**X**	**X**	--	**X**
Waldenstrom (1999)[a]	**ns**	--	**X**	**X**	**X**	**X**	--
Windridge & Berryman (1999) [a]	**ns**	--	**ns**	--	--	--	--
Waldenstrom et al. (2004)[a]	**X**	--	**X**	**X**	**X**	**X**	--
Goodman, Mackey, & Tavakoli, (2004)[a]	--	**X**	**ns**	--	**X**	--	**ns**

Note. X = significant correlation; a = Study assessed satisfaction with childbirth experience; b = Study assessed satisfaction with maternity care; -- = Not assessed as correlate of satisfaction; ns = Not significant.

Table 3 Continued.

Study	*Demographic Variables*			*Psychosocial Variables*			
	Age	SES	Parity	Quality of Caregivers	Control/ Information	Social Support	Expectations vs. Experience
Zasloff, Schytt, & Waldenstrom (2007)[ab]	**X**	--	--	--	--	--	--
Christiaens & Bracke (2007)[a]	--	--	--	--	--	--	**X**
Bryanton et al. (2008)[a]	--	**ns**	**ns**	**X**	**X**	**X**	**X**

Note. X = significant correlation; a = Study assessed satisfaction with childbirth experience; b = Study assessed satisfaction with maternity care; -- = Not assessed as correlate of satisfaction; ns = Not significant.

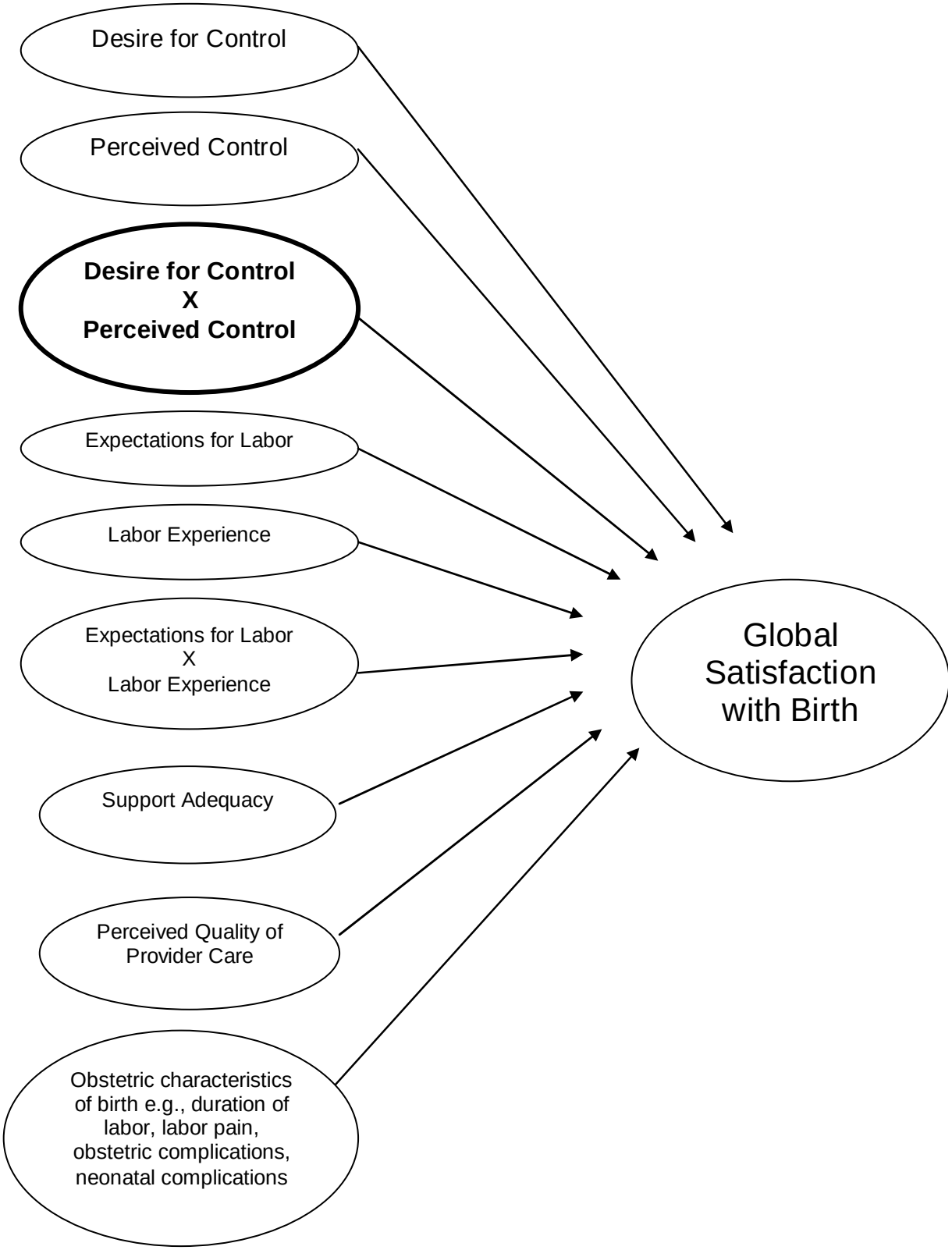
Formulating a testable model of childbirth satisfaction requires a theoretical understanding of the psychosocial predictors revealed in the literature as well as development of instruments to measure them. The current study was informed by a model that suggests four psychosocial factors predict childbirth satisfaction: congruence between desire for control and perceived control, congruence between a mother's expectations for the labor and delivery process and her experience (e.g., unplanned cesarean section), adequacy of social support during labor (i.e., congruence between her specific support needs and the types/amount of support available), and the quality of the caregiver-patient relationship. The characteristics of labor (i.e., length of labor, severity of pain, pain management) and birth outcome (i.e., presence of maternal/neonatal complications) are also presumed to affect satisfaction. As shown in Figure 1, a comprehensive biopsychosocial model will ultimately examine the relative contributions of both the psychosocial aspects of birth and the obstetric outcome.

Although it will be important to fully assess all of the dimensions included in Figure 1, this was beyond the scope of the current study. The focus of the current study was to examine the relationship between perceived control during birth and overall maternal satisfaction. The remainder of the literature review focuses on perceived control as a predictor of childbirth satisfaction. Theoretical definitions of perceived control from the broader psychological literature were used to guide interpretation of variables described in childbirth satisfaction studies.

Control Beliefs

A sense of being "in control" during labor and delivery appears to be an important predictor of negative childbirth outcomes (i.e., PTSD) and positive outcomes broadly defined

Figure 1. Biopsychosocial Model of Maternal Satisfaction with Childbirth



as satisfaction. Perceived control was identified as a significant correlate of maternal satisfaction in 14 of the 24 studies retrieved from the literature search (see Table 3). It is important to note, however, that "perceived control" encompasses a range of constructs, including perceived control over health outcomes (e.g., health locus of control) and perceived control over specific situations. Extant literature has examined both health locus of control and perceived control over the childbirth environment in relation to childbirth satisfaction. In addition, researchers have suggested that desire or motivation for control may influence evaluations of birth. Unfortunately, a theoretical understanding of the relationship between control and the childbirth experience has been poorly developed. In order to understand some of the problems with this literature it was necessary briefly review the theoretical development of locus of control, perceived control of specific situations/environments, and desire for control.

Health Locus of Control. Derived from social learning and attribution theories, health locus of control (HLC) is a multidimensional construct defined as the perceived attribution of health outcomes to internal mechanisms, the actions of powerful other people (e.g., health professionals, family members), or chance factors (Wallston et al., 1978). In general, an "internal" HLC orientation has been found to promote positive psychological adjustment to illness (e.g., Smith, Dobbins, & Wallston, 1991) whereas "powerful others" and "chance" orientations have been associated with poor psychological adjustment (e.g., Affleck, Tennen, Pfeiffer, & Fifield, 1987). Researchers have conceptualized these individual differences as both trait-like and state-like, in which systems of control expectancies are regarded as relatively stable over time and applicable across varying health situations while also being regarded as susceptible to change given differing experiences or health contexts (Wallston et

al., 1987). Maternal health researchers have also addressed the question of individual differences in HLC beliefs in relation to childbirth outcomes (i.e., Knapp, 1996; Waldenstrom, 1999).

Two studies have examined HLC in relation to childbirth satisfaction (Knapp, 1996; Waldenstrom, 1999). In both studies, only perceived control of the childbirth environment, not HLC, predicted satisfaction. Interpreting these findings requires properly distinguishing the two predictors. Whereas HLC represents a more stable set of expectations regarding who (or what) determines birth outcomes, perceived control of the birth environment is an appraisal of personal control over a particular situation or event (i.e., "Did I have control over the situation?"). The two former studies suggest that trait-like expectations of control over childbirth outcomes may not be as robust a predictor of satisfaction as women's perceptions of control over their particular childbirth situation. In fact, throughout the literature, perceived control over the birth situation clearly eclipses most other predictors of satisfaction (e.g., Brown & Lumley, 1994, 1998; Quine et al., 1993; Seguin et al., 1989; Waldenstrom et al., 1996; Waldenstrom, 2004).

Perceived Personal Control of the Situational Context. Perceived control over a specific situation has been defined as an individual's belief that the situation is "under control" while personal control has been defined the belief that the situation is "self-determined" (Walker, 2001). Perceived personal control integrates both components: the object being controlled (the situation or environment) and the agent engaged in the action of control (the person). Hence, perceived personal control reflects the belief in one's ability to influence the conditions of a particular environment and the belief that these conditions were

achieved through the individual's actions. In this review, the term 'perceived control' is used to refer to perceived personal control of specific situations.

The work of early scholars who sought to explain such concepts as social perception and causality (Heider, 1944), social attribution (Kelley, 1973), the control of human behavior (Skinner, 1953), achievement motivation and personal causation (DeCharms, 1976), and environmental mastery (White & Janson, 1986) all influence our current understanding of perceived control over specific situations. Each of these theories attempts to explain the role of the individual in initiating action and determining a particular outcome (Walker, 2001). Early experimental research on the effects of control in stressful situations explored an individual's ability to predict, terminate, and tolerate aversive stimuli. For example, control over shock administration was associated with reduced autonomic disturbance and anxiety while control over distraction methods was found to improve tolerance to the cold pressor task (Haggard, 1943; Kanfer & Goldfoot, 1966; Pervin, 1963). The availability of choice was also found to mitigate the physiological consequences of stressful situations (Corah & Boffa, 1970). Given the stressful nature of many healthcare situations, it is not surprising that perceived control of healthcare processes has been relevant to understanding patients' adjustment within these settings.

Consistent with the general literature, perceived control over healthcare procedures is thought to be an important factor for positive adjustment. Research on surgical patients found that use of a control-enhancing coping strategy was associated with reduced pre- and post-operative stress and reduced need for sedatives and analgesics post operatively (Langer, Janis, & Wolfer, 1975). In a sample of blood donors, those who received procedural information or choice of which arm to use reported less discomfort and anxiety (Mills &

Krantz, 1979). Perceived control may be especially important for adjusting to chronic diseases such as cancer and chronic pain. Particularly, perceived control over daily symptoms, medical procedures, and strategies used to manage pain has been related to positive mood, increased activity level, and less depression and anxiety (Affleck et al., 1987; Jensen & Karoly, 1991). Together, these findings suggest that when individuals perceive a loss of control the experience of pain, discomfort, and anxiety is more severe. In contrast, when perceived control increases, so does positive adjustment and well-being. Thus it is expected that perceived control would have a special relevance to childbirth.

Perceived Control of the Childbirth Environment. Childbirth is a unique "health condition." Whereas most healthcare is reparative, necessitated by the presence of "disease," or preventative, with the goal of preventing disease, pregnancy and childbirth are both normal and in fact indicative of health, but also associated with discomfort and increased vulnerability to health complications for both mother and infant. At minimum, the birth process usually involves medical procedures required to monitor labor progress and maternal-fetal well-being. The experience of labor pain, though not pathological, progressively intensifies and can be perceived as especially stressful if the mother believes that it is not being effectively managed through medications or other comfort techniques. It seems logical that a sense of control within the birth environment would serve to reduce pain and increase satisfaction and positive adjustment after the birth.

In the context of childbirth, perceived control can be conceptualized as the extent to which the mother believes her actions influence the conditions of the birth environment. Although the majority of studies do not explicitly operationalize perceived control, a review of the literature revealed several variables that indirectly reflect a patient's degree of

perceived control. The most frequently cited indicator was involvement and/or participation in decision-making during labor and delivery (Brown & Lumley, 1994, 1998; Bryanton et al., 2008; Green, Coupland, & Kitzinger, 1990; Seguin et al., 1989; Waldenstrom, 1996; Waldenstrom, 1999; Waldenstrom et al., 2004). The majority of these studies indicate that patients who reported that they were able to take part in medical decisions (i.e., exert personal control) described their experiences as more positive and satisfying.

Several studies described other variables indirectly indicative of perceived control, such as information accessibility, the availability of choices and freedom of mobility during labor. For example, patients who had access to information regarding procedures and progress of labor reported higher satisfaction (Brown & Lumley, 1994, 1998; Drew, Salmon, & Webb, 1989; Green et al., 1990; Quine, Rutter, & Gowen, 1993; Seguin et al., 1989; Sullivan & Beeman, 1982; Waldenstrom, 2004). Similarly, two studies found that being given multiple options as well as the opportunity to choose between them (e.g., type of pain medication) was important to women's positive evaluation of the birth (Drew et al., 1989; Sullivan & Beeman, 1982). In several studies, patients who were free to ambulate and choose comfortable positions and comfort techniques were more satisfied with their birth experiences (Drew et al., 1989; Green et al., 1990; Jacoby, 1987; Sullivan & Beeman, 1982). Finally, having preferred support persons in the labor room and *not* having unwanted people in the room were associated with higher childbirth satisfaction (Brown & Lumley, 1994, 1998; Drew et al., 1989; Jacoby, 1987). As a whole, the childbirth satisfaction literature identifies a range of variables indicative of perceived control.

Measuring Perceived Control in Childbirth. Although most studies defined perceived control indirectly, there are studies that employ more direct measures of the control

construct. Extant measures of perceived control at best assess the ability to assert control over a single aspect of the childbirth process and do not comprehensively assess "perceived control." For instance, several studies have asked patients to report feelings of "control" but lack further specificity (Bryanton et al., 2008; Zasloff et al., 2007). It is difficult to believe that a single or at most two-item measure adequately captures the perceived control construct.

In addition to these brief measures, there are two more developed scales that were designed to assess perceived control during childbirth. The "External Control" subscale of the Support and Control in Birth Scale (SCIB; Ford, Ayers, & Wright, 2009) contains 11 items that assess the degree to which women perceive control over the procedures, information, and people present during their births, in addition to their perceived freedom to move around during labor. Although the SCIB was structured specifically for the childbirth context and the items seem to be consistent with the definition of control presented earlier, the scale does not comprehensively define the perceived control construct. The other measure, the Labor Agentry Scale (LAS; Hodnett & Simmons-Tropea, 1987), is designed to assess personal feelings of control during childbirth. Two studies have used the LAS as a measure of perceived control and found that scores were positively correlated with satisfaction (Goodman, Mackey, & Tavakoli, 2004; Knapp, 1996). However, LAS items appear to tap multiple constructs including feelings of control (e.g., "I had a sense of being in control"), self-efficacy (e.g., "I felt competent") and emotional status (e.g., "I felt fearful"). Thus, neither of these measures adequately assesses perceived control of the childbirth environment.

Again, notwithstanding these limitations, the childbirth literature provides some evidence that a higher degree of perceived control contributes to a positive experience of labor and birth. It is reasonable to conclude that one way to improve maternity care would be to enhance women's sense of control, encourage them to make most/all choices during labor, and to be as involved in the laboring process as possible, barring complications. However, women's perception of having control may not always be associated with greater satisfaction. An individual's *desire* for control is another factor thought to be related to health outcomes.

Desire for Control. In contrast to appraisals of one's control over a specific situation, desire for control reflects an individual's motivation to act in such a way as to influence the environment. Early research on desire for control questioned whether control is fundamentally, intrinsically motivating or if it is desired only in certain situations. For example, in a review of healthcare literature, Thompson and colleagues (1988) noted that perceived control might be maladaptive if using control requires too much effort, if information is limited, if attempts at gaining control have resulted in failure, if control is not in accordance with the individual's coping style, or if the individual simply prefers to not have control. In particular, the lack of certainty surrounding health outcomes might preclude desire for control. Unfortunately, specific preferences for control are not always taken into account as a standard in healthcare, including in perinatal healthcare.

The childbirth context is unique in that most women have a strong emotional investment in the *process* of labor and delivery, and not just in the final outcome (the birth of a healthy infant). For example, many women come to the hospital with a "birthing plan" that specifies their a-priori preferences for pain control and desire for medical intervention. In fact, childbirth may offer greater expectations for exercising control than most other medical

situations. Thus, desire for control may be more pertinent to maternal satisfaction with childbirth than for many other medical procedures.

Desire for control in the childbirth context can be thought of simply as a woman's motivation to influence her birth environment and it is almost certain that the degree of motivation varies from patient to patient. For example, women who reported perceptions that their doctors were in control of their childbirth had similarly low levels of postpartum depressive symptoms as those who reported a more "internal" locus of control over birth outcomes (Gray, 2005). These findings suggest that during childbirth *all* (or certainly most) women would find agentic control (whether by the self or a competent physician) more reassuring than perceptions that birth outcomes were controlled by chance. Meaningful variance is more likely to hinge on whether a woman prefers to be in control and whether the environment supports this preference.

Measuring Desire for Control of the Childbirth Environment. Driven by the need for a measure of desire for control that is specific to the childbirth situation, the Desire for Control in Childbirth Behavior Scale (DCChB) has been validated in a sample of pregnant women (Stevens et al., 2009). This 15-item scale contains items based on the Krantz Health Opinion Survey (KHOS; Krantz, Baum, & Wideman, 1980), the Desire for Control of Health Care Scale (DCON; Wallston et al., 1983), and the Desirability for Control Scale (Burger, 1992). Items were designed to assess the boundaries of desire for control during childbirth (e.g., "I would prefer to avoid a childbirth situation in which the medical staff tell me what to do;" "Except for serious complications, it is better to make your own decisions about how to manage labor and birth than to rely on professional help"). Exploratory factor analysis provided evidence that the DCChB assesses a single dimension of desire for control and the

scale was shown to be internally consistent. As expected, women who reported higher desire for control were significantly more likely to have chosen a birthing environment or support personnel that would maximize their ability to exert control. For instance, women who were high in desire for control were more likely to choose non-traditional caregivers such as midwives as well as a childbirth location other than a hospital. Consistent with prior research, desire for control showed a low to moderate correlation with the Multidimensional Health Locus of Control Scale (formulated for the childbirth environment; Wallston et al., 1983).

Summary of Literature

Most women look forward to childbirth with a sense of anticipation and preferences for how the event will unfold. Thus, drawing from SWB theory, the present study adopted a PE fit model of childbirth satisfaction conceptualized as the fit between the individual's preferences for the experience and the extent to which those preferences were manifest in the childbirth environment. Specifically, childbirth satisfaction is conceptualized as a cognitive evaluation. Although affective reactions to childbirth are certainly important, women's evaluations of their childbirth experiences and their affective reactions may differentially impact postpartum psychological health and should be evaluated separately.

Past research suggests that meeting a patient's need for control over the birth environment may be a particularly important predictor of satisfaction. However, testing a PE fit model of childbirth satisfaction requires the presence of psychometrically valid, theoretically derived measures of desire for control, perceived control, and maternal satisfaction. The purpose of the current study was to develop measures of perceived control and satisfaction.

Measure Development: Perceived Control

As previously noted, measures of perceived control in childbirth commonly used in childbirth satisfaction studies are limited because no single measure integrates all aspects of a patient's ability to influence the birth environment (i.e., medical decision-making, choosing labor attendants, etc.). Rather than using these piecemeal measures, it was thought that a better approach would be to adapt an existing, theoretically developed, measure of perceived control to the unique circumstances of childbirth. The Perceived Control of Health Care Scale (PCON) is a 17-item situation-specific measure that defines perceived control as the ability of an individual to regulate or influence the health environment in a given situation (Wallston et al., 1987).

Although the PCON fully captures the perceived control construct and was structured for use in almost any medical setting, the scale in its current format would not adequately capture the childbirth context. The lack of specificity limits validity in a childbirth setting because of the fundamental difference between birth and most healthcare situations. That is, most healthcare situations involve treatment of disease, and the outcomes are generally medically determined. Conversely, childbirth is not a disease per se and its outcome is most often the result of a healthy, normal process. A measure must be sensitive to both the normalcy and vulnerability of birth in order to meaningfully capture perceptions of control in this context.

Measure Development: Childbirth Satisfaction

Recall that maternal health researchers have argued that childbirth satisfaction encompasses both affective responses and cognitive evaluations (e.g., Hodnett, 2002). Childbirth satisfaction studies have utilized measurement tools reflecting both definitions of

satisfaction, if a definition was identifiable from the measures at all. However, the current study drew from SWB theory and conceptualizes childbirth satisfaction as the cognitive evaluation of whether the birth experience matched one's ideal. Childbirth satisfaction is also conceptualized as a global construct, in order to determine the amount of variance biopsychosocial factors contribute to overall evaluations of birth. This definition is grounded in PE fit theory and provides a logical framework for understanding the relationships between biopsychosocial factors and childbirth satisfaction.

Similar to developing a measure of perceived control, the current study sought to adapt a well-validated measure of satisfaction to the childbirth context. The satisfaction construct described in SWB research is assessed using the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS is a 5-item measure of life satisfaction designed to reflect one's judgment of her life in comparison with her own unique standards. Because the SWLS reflects a global construct, "life" can easily be replaced with a specific domain or event in order to assess the individual's satisfaction with that domain, in this case, the childbirth experience.

Prior to conducting the current study, a pilot study was conducted to preliminarily evaluate the Satisfaction with Childbirth Scale (SWCh) and to examine the relationship between childbirth satisfaction and affective responses to birth. The purpose, method and results of the pilot study are presented in the following section.

Pilot Study

The purpose of the pilot study was to first examine the face validity and internal structure of the SWCh and to refine the scale items for further investigation. Second, correlations between the SWCh and the Positive and Negative Affect Schedule (PANAS)

were examined in order to distinguish cognitive evaluations of the childbirth experience from affective reactions. The pilot study adhered to Clark and Watson's (1995) suggestions for scale development, beginning with providing a theoretical conceptualization and operational definition of satisfaction. Consistent with the conceptualization of satisfaction as a cognitive construct, the initial items for the SWCh were modified from the SWLS. Based on SWB theory, the SWLS is a cognitive, global measure of life satisfaction that has been well-validated (Pavot & Diener, 1993).

Participants and Procedures. The initial pool of SWCh items was adapted from the SWLS to describe global satisfaction with the birth experience. Because SWLS items do not refer to any specific life domains, the word "life" was simply replaced with the term, "childbirth experience" or "my baby's birth." For example, the item, "In most ways, my life is close to my ideal" was changed to, "In most ways, my childbirth experience was close to my ideal." In the original development of the SWLS, the authors chose not to use reverse scored items because the degree to which acquiescence might influence responses was thought to be small (Pavot & Diener, 1993). However, the authors acknowledged that response acquiescence in the SWLS might be a potential problem. Therefore, after modifying the five SWLS items to include "childbirth experience" or "my baby's birth," each item was then reverse worded, creating a total of 10 items. No other changes were made to these items.

The SWCh was reviewed by a small group of "content experts" including one certified childbirth support professional (i.e., doula), one obstetrician, and one individual who was not a perinatal health professional but had recently given birth. The group examined items on the SWCh for clarity and relevance to postpartum patients. No major changes to the items were made after the items were reviewed.

The SWCh was piloted using a sample of 87 postpartum women who volunteered to complete the anonymous survey on a website that serves as a resource for families preparing for birth and parenting roles (Babycenter.com). The University of Kansas granted human subjects approval prior to posting the survey online. Criteria for inclusion in analysis were that participants reported giving birth in the last 6 months. No other exclusionary criteria were used. Although infant outcome data were not available for the entire sample, all participants reported that their most recent childbirth experience resulted in the delivery of a healthy infant. Table 4 summarizes the demographic and birth outcome data for the sample.

Measures. The Pregnancy Information Questionnaire gathered information about participant demographics, parity status, and prenatal care. A Birth Outcome Questionnaire gathered information about the labor and delivery including method of delivery and the infant's outcome.

The 10 items on the SWCh were intended to capture participants' cognitive evaluations of their birth experiences, specifically whether the birth conformed to the participants' wishes. Participants rated satisfaction items on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. Items were scored such that higher scores reflected greater satisfaction with childbirth. The SWCh items were adapted from the 5-item SWLS (Diener et al., 1985). The SWLS has shown high internal reliability (α=.87) and moderate test-retest stability (coefficient=.82; Pavot & Diener, 1993). Evidence of construct validity demonstrates that the SWLS is strongly negatively correlated with measures of distress such as the Beck Depression Inventory (r = -.72, p = .001; Pavot & Diener, 1993). The PANAS was also administered. The PANAS is a 20-item scale measuring affective states and consists of two separate scales: positive (PA) and negative affect (NA).

Table 4

Pilot Sample Characteristics

	N = 87
Demographics	
Age	28.9(5.1)
# Weeks Since Delivery	5.7(4.5)
% Married/Living with Partner	96.5
% White/Caucasian	95.4
% Earned Less than 4-Year College Degree	41.4
Pregnancy/Birth Characteristics	
% Primiparous	47.1
% Receiving Perinatal Medical Care from OB/GYN (i.e., not a midwife)	68.9
% Out of Hospital Birth	16.1
% Normal Vaginal Delivery (i.e., non-cesarean delivery; Out of 61 Reported)	86.8
% Apgars > 7 (Out of 60 Reported)	100

Twenty adjectives (10 positive and 10 negative) are included on the scale and respondents are asked to rate each item on a 1-5 Likert Scale. Reliability coefficients range from .84 to .90 for the subscales. The PANAS subscales correlate with the BDI: PA scale (r = -.35) and NA scale (r = .56; Watson, Clark, & Tellegen, 1988). Participants were asked to rate items as they think of their most recent birth experience.

Analysis and Results. Analyses included an examination of the distributional characteristics of the SWCh items, an exploratory factor analysis, and an examination of correlations among satisfaction, positive affect, and negative affect. Table 5 presents the SWCh item descriptive statistics. The distribution of the items did not demonstrate any substantial skew or kurtosis.

Following Preacher and MacCallum's (2003) recommendations for conducting exploratory factor analysis, EFA was conducted using the OLS estimator in the CEFA 3.02 program. Specifically, EFA models with factor solutions ranging from one to three factors were fit to the 10 items. A single-factor solution was the most interpretable, explaining 81% of the variance in item responses. As shown in Table 6, factor loadings ranged from .69 to .96 and the overall scale was highly internally consistent (α = .97).

Surprisingly, the EFA also indicated poor model fit for the single factor solution (RMSEA= .191; 90% CI = .159-.224). This was particularly unexpected given that the analysis also revealed very small unique variances for some of the items. In fact, the largest unique variance was .52 and half were less than .20, which is suggestive of very little error variance for these items (see Table 6). According to Browne et al. (2002), marked inflation of model misfit can occur when unique variances of at least some of the items are small because, in these instances, individual items contain little measurement error, but they also only measure characteristics that the other items are measuring. Browne et al. (2002) go on to explain that one particular circumstance that lends itself well to inflation of fit indices is when highly reliable measures are used to measure a particular characteristic several times. The fact that the SWCh contained five virtually identical pairs of items (each item was reverse worded) may have resulted in high reliability and inflated model misfit. However,

Table 5

Pilot Study Descriptive Statistics for the SWCh Items

	N	*Mean*	*SD*	*Skewness*	*Kurtosis*
1. In most ways, my childbirth experience was close to my ideal.	87	5.07	1.80	-.52	-.66
2. I did not get what I wanted out of my childbirth experience.	87	5.14	1.79	-.51	-.76
3. The conditions of my childbirth experience were excellent.	87	5.16	1.65	-.44	-.75
4. If I could do it over, I would change some things about my childbirth experience.	87	3.84	1.98	.47	-1.03
5. I am satisfied with the experience of my baby's birth.	87	5.25	1.75	-.70	-.38
6. In most ways my childbirth experience was far from my ideal.	87	5.07	1.82	-.64	-.54
7. I got what I wanted out of my childbirth experience.	87	5.18	1.70	-.63	-.33
8. I am not satisfied with the experience of my baby's birth.	87	5.18	1.81	-.68	-.33
9. If I could do it over, I would change almost nothing about my childbirth experience.	87	4.52	2.06	-.09	-1.45
10. The conditions of my childbirth experience were terrible.	87	5.57	1.60	-.76	-.31

analysis of only the five positively worded items revealed similarly poor fit (RMSEA= .209; 90% CI = .129-.297) as well as small unique variances (< .30), high factor loadings (≥ .85), and high internal consistency (α = .96). Whether the EFA examined five or 10 items, the model misfit of the SWCh may be attributable to extremely high reliability and factor loadings. Therefore, lack of close fit did not hinder proceeding with the next step in measure development.

Table 6

Unique Variances and Factor Loadings of the SWCh Items

	Unique Variances	Factor Loadings
SWCh 1	.13	.94
SWCh 2	.19	.90
SWCh 3	.25	.87
SWCh 4	.52	.69
SWCh 5	.11	.94
SWCh 6	.09	.95
SWCh 7	.23	.88
SWCh 8	.07	.96
SWCh 9	.19	.90
SWCh 10	.33	.82

Construct Validity. Childbirth satisfaction researchers have argued that satisfaction encompasses both cognitive and affective components, thus, one of the goals of the pilot study was to examine the relationship between childbirth satisfaction and affective responses

to birth. Internal consistency coefficients for the PANAS were .96 for the PA subscale and .92 for the NA subscale. The SWCh was highly correlated with positive affect (r =.80, p < .01) and moderately inversely correlated with negative affect (r = -.44, p < .01). In other words, satisfaction and positive affect shared 64% of the variance while satisfaction and negative affect shared only 19% of the variance.

Summary of Findings. Results of the EFA using a small pilot sample provided preliminary evidence of an internally consistent, unidimensional measure of childbirth satisfaction. However, the results also demonstrated small unique variances on some of the SWCh items. Browne and colleagues (2002) point out that the phenomenon of incompatibility between fit indices and error variances is not necessarily a problem in need of correction because little measurement error is always a desirable quality. However, these findings provided a rationale for revising and/or discarding certain items to reduce semantic similarity.

Satisfaction with childbirth was significantly correlated with both positive and negative affect, although satisfaction appears to share more variance with positive affect than with negative affect. These results imply that even achieving one's ideal birth experience does not preclude negative emotional feelings about the birth, and that minimal negative feelings about the birth are not necessarily indicative of satisfaction. These data provide some partial evidence that cognitive evaluations of birth and affective responses (particularly negative affect) are separate constructs.

Current Study Hypotheses

The current study examined the validity and reliability of the SWCh and the Perceived Control in Childbirth Scale (PCCh). Using findings from the pilot study, the initial

version of the SWCh was revised to minimize redundancy among the items. Therefore, four of the negatively worded items were discarded and two additional negatively worded items were constructed.

Given that the PCCh is a situation-specific measure, it was determined that items representing greater contextual detail would provide greater specificity in describing perceived control of the childbirth environment. Half of the items were adapted from the PCON because these items have been shown to be reliable and valid indicators of perceived control of healthcare (Wallston et al., 1987). The other half of the items was drawn from a list of specific characteristics that postpartum women used to describe active involvement in the birth process (Drew et al., 1989). The decision to include items from a theory driven (top-down) measure with items generated by a more qualitative (bottom-up) procedure ensured that the PCCh was grounded in theory and also included a full range of situation-specific content.

Construct validity was examined through an exploratory factor analysis (EFA) of the PCCh and SWCh as well as correlations with criterion variables. The "External Control" subscale of the Support and Control in Birth Scale (SCIB), the Childbirth Self-Efficacy Inventory (CBSEI), the PANAS, the childbirth-specific Postpartum Stress Symptom Scale (PSS), and a brief version of the Marlow-Crowne Social Desirability Scale (MCSDS) were administered to a subset of the sample to assess construct validity (the MCSDS was used for discriminant validity purposes). The current study examined the following hypotheses:

1. Perceived control of the childbirth environment and satisfaction with childbirth would each be explained by a single common factor, identified using EFA (maximum likelihood estimation).

2. The resulting two instruments would show high internal consistency (coefficient alpha >.80).
3. The PCCh would show a moderate positive correlation with the CBSEI and the SWCh, a small to moderate negative correlation with the posttraumatic stress symptoms (PSS), a moderate to high positive correlation with the "External Control" subscale of the SCIB, and would be uncorrelated with the MCSDS.
4. The SWCh would show a small to moderate positive correlation with the CBSEI and the "External Control" subscale of the SCIB, a small to moderate negative correlation with negative affect (NA) and posttraumatic stress symptoms (PSS), a moderate to high correlation with positive affect (PA), and would be uncorrelated with the MCSDS.
5. Women who chose midwives and doulas as their caregivers or gave birth at home or at a birth center would report higher perceived control.
6. Women who report obstetric complications (even those resulting in a healthy infant), longer labors, poorly managed pain during childbirth, or an unplanned cesarean section delivery would report lower satisfaction scores.

Method

The procedures for the study were approved by the Institutional Review Boards of the University of Kansas (Lawrence Campus), the University of Kansas Medical Center (KUMC), and Lawrence Memorial Hospital (LMH; Lawrence, KS).

Participant Eligibility

Participants in this study were 255 women recruited from outpatient obstetric clinics affiliated with KUMC and LMH, a breastfeeding support group at LMH, and a website that serves as a resource for families preparing for birth and the parenting role (Babycenter.com). The majority of participants were recruited at the clinics or support group meetings (n = 155), and the remaining participants responded to the Babycenter.com advertisement (n = 100). Women were invited to participate, either in person or via online advertisement, if they were at least 18 years of age, spoke English fluently, and had given birth to a live infant within the past four months. No other exclusionary criteria were used.

It is important to note that pregnancy and childbirth outcome information (e.g., complications, method of delivery, Apgar scores) were assessed in order to determine risk status and maternal and neonatal outcome. This information was not used for exclusionary purposes; rather, the goal was to capture the full range of women's birthing experiences, including those with high-risk pregnancies or unplanned cesarean sections. At the exploratory phase of instrument development, it was important to include responses influenced by pregnancy complications and non-vaginal deliveries as these represent an important - and increasing - proportion of perinatal experiences.

Unfortunately, several factors interfered with obtaining a more representative sample. The survey was prepared only in English and, therefore, three patients from the outpatient clinic at KUMC were not approached for the study because clinic staff identified these patients as monolingual Spanish speakers. It was not possible to be certain whether online participants were fluent English speakers. The final sample may also be biased according to self-selection. Nine clinic patients declined to participate, and it is likely that a number of

Babycenter.com subscribers chose not to participate upon reading the advertisement. Finally, responses were not obtained from a number of participants who initially agreed to participate, but failed to complete the survey. Of the 155 participants recruited at the clinics or support group meetings, 60 elected to complete and return the survey by mail, and, of those 60, only 44 participants (73%) actually returned the surveys. Although the goal of the study was to capture a wide range of experiences from a diverse group of women, the limitations of recruitment and sampling methods precluded a truly representative sample.

Excluded Data. Responses of women reporting scheduled cesarean deliveries were included in the analysis only if they had experienced at least some labor prior to the surgery because most items on the PCCh were specific to the labor experience. Of the 100 respondents who responded to the survey online, 30 failed to report birth outcome information, thus it was unknown whether they experienced any labor. Data from eight online participants and 14 clinic/support group participants were excluded from the analysis because they reported a scheduled cesarean delivery without labor or had delivered more than four months prior to completing the survey. Thus, a total of 52 responses were excluded from the data analysis. The final sample included 187 participants (125 clinic/support group, 62 online). Figures 2 and 3 report data of the recruitment and exclusion process for the clinic/support group participants and the Babycenter.com participants.

Procedures

Clinic/Support Group Sample. Patients were informed about the study when they checked in for their postpartum or well-baby follow-up appointments or at a breastfeeding support group for new mothers. When patients arrived for their appointments or group meetings, the staff/group leader informed them that the study investigator was present to

Figure 2. Recruitment and Exclusion of Clinic/Support Group Participants

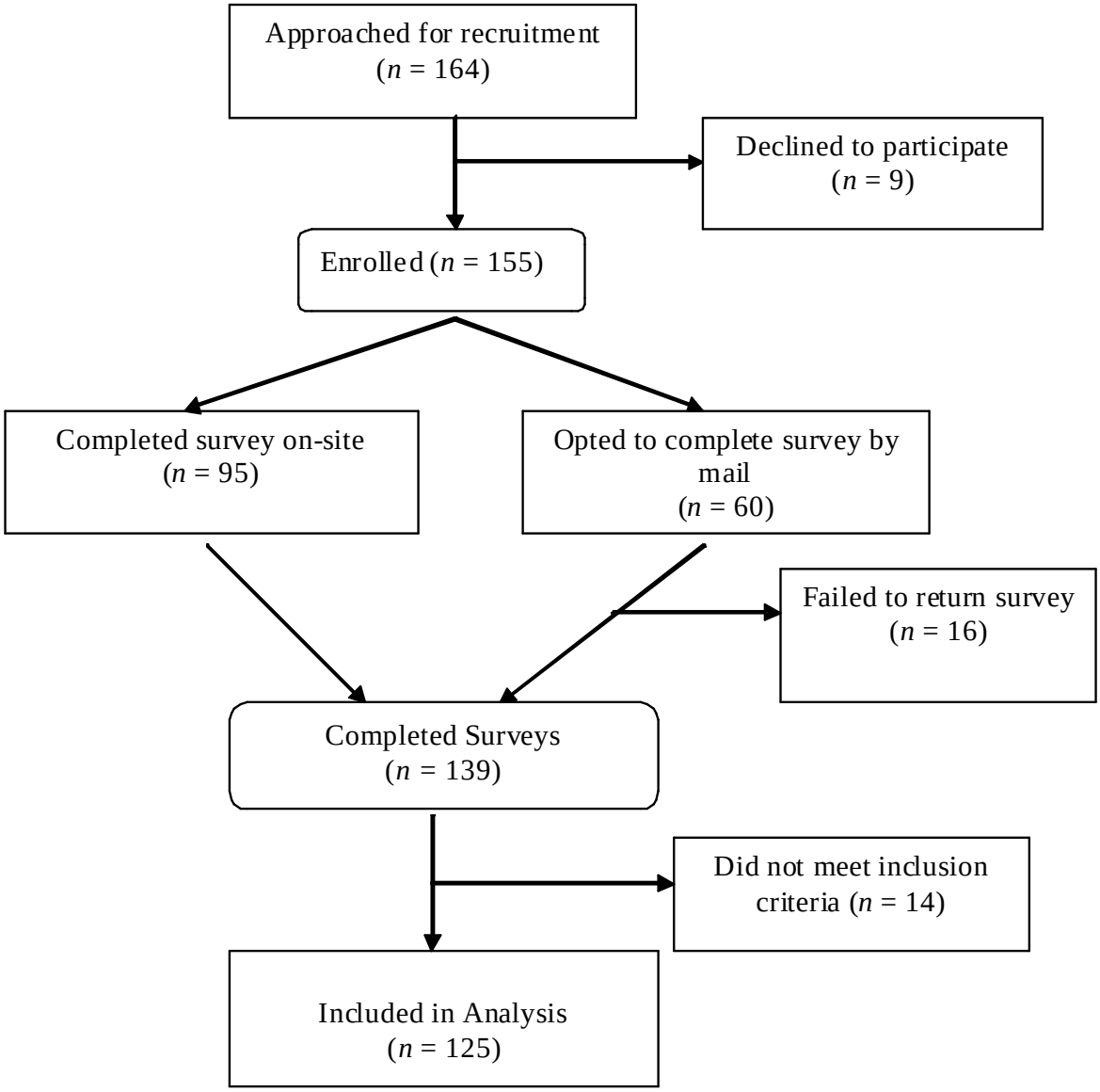
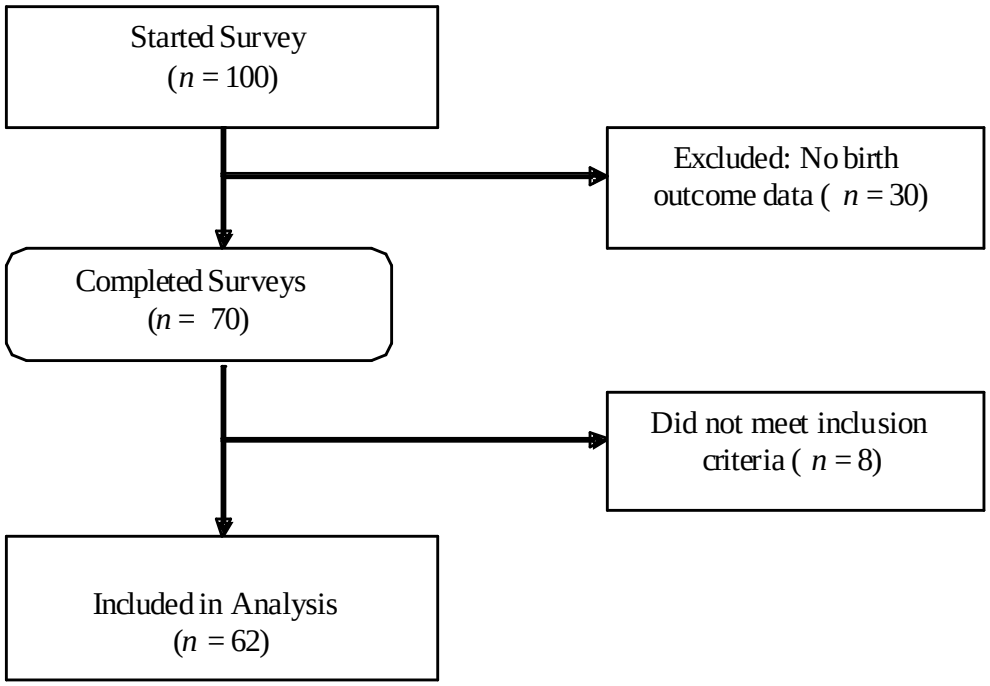


Figure 3. Recruitment and Exclusion of Babycenter.com Participants



conduct a childbirth outcome survey. The study investigator then briefly explained the purpose of the study and provided those who were interested with the appropriate materials. In order to maintain confidentiality in the clinics, the study investigator did not approach individual patients until after they had given verbal consent to the clinic staff to meet with the investigator. To protect participant privacy, the investigator did not conduct a formal screening of each individual patient and support group member to determine delivery method or number of weeks since delivery. Rather, potential participants were simply informed that

the study focused on the experience of labor and delivery within four months of giving birth, and that it was their choice to enroll or decline.

Clinic and support group staff members were not responsible for distributing or collecting surveys. Participants who were unable to complete the survey onsite received a stamped envelope to return via mail to the investigator when complete. Upon completion of the survey, participants recruited at LMH clinics and support group meetings received a $10 Target gift card and participants recruited at KUMC clinics received their choice of a book or CD valued at $10 at the study site or by mail. Participants returning surveys by mail were asked to provide a return address for the purposes of mailing the gift cards, books, or CDs. Once the gifts were mailed, the return envelopes were shredded.

Internet Sample. Babycenter.com operates "birth clubs" with discussion boards for women who have given birth within a particular month. Permission to post a link to the survey packet was requested from administrators of the "birth clubs" for mothers of infants born in the three previous months. However, only the administrator of the earliest month responded to the request. Therefore, the study was only advertised to mothers who had given birth in the last 3-4 months. Members of this group were provided basic information about the purpose of the study and contact information for the study investigator. Subscribers who were interested in participating in the study were asked to click on a link labeled "Postpartum Survey." In order to be eligible for compensation online, participants were instructed to complete the entire survey, retrieve a code word from the last page, and email the code word to the study investigator. Because Babycenter.com strictly advises subscribers against releasing their names or contact information to online researchers, only participant email addresses were used to send $10 Target e-gift cards. Twenty online participants contacted the

study investigator to receive the e-gift card, and because the surveys were anonymous, it was not possible to determine which participants received compensation and which had not.

Measures

Postpartum Survey Packet: The Postpartum Survey Packet contained a Pregnancy Information Questionnaire, a Birth Outcome Questionnaire, the PCCh, the SWCh, the SCIB, the CBSEI, the PSS, the PANAS, and the MCSDS.

Pregnancy Information Questionnaire. This questionnaire gathered demographic information and health information regarding participants' most recent pregnancy, past medical history, current medical conditions, pregnancy complications, and perinatal care decisions (i.e., type of provider, childbirth education, location of birth). The Pregnancy Information Questionnaire is presented in Appendix A.

The Birth Outcome Questionnaire. This questionnaire requested information regarding length of labor, interventions that were used (e.g., induction, augmentation, artificial rupture of membranes (AROM), electronic fetal monitoring (EFM), internal monitoring, pain medications, etc.), perceptions of pain, pain management, type of delivery, and whether any complications arose during labor or immediately following birth. Information regarding the infant's outcome including Apgar scores, birthweight, and whether the mother attempted and/or continued breastfeeding was also asked. The Birth Outcome Questionnaire is presented in Appendix B.

PCCh. The initial pool of items for the PCCh was adapted from Drew et al. (1989) and from the PCON (Wallston et al., 1987). A total of 18 items were selected from Drew et al. (1989) based on patient ratings of importance and their consistency with the study's definition of control. The PCON is a 17-item situation-specific instrument that measures

perceived control in health-related settings and has been found to be internally consistent (α = .81). The 17 PCON items were modified to fit the childbirth context. Two additional items were constructed based on the original PCON items in order to increase the proportion of reverse scored items. The 37 PCCh items are provided in Appendix C.

External Control (SCIB). The External Control subscale contains 11 items that measure perceptions of control of various aspects of the birth environment, including procedures, people in the room, and freedom to move around (Ford et al., 2009). Items were derived from semi-structured interviews in which women were asked to describe perceptions of control during childbirth and were analyzed using principle components analysis in a sample of 427 women. The initial validation of the subscale was found to have high internal consistency (coefficient alpha = .93).

SWCh. The revised SWCh contains 8 items based on the SWLS (Diener et al., 1985). In the pilot study, the initial version of the SWCh demonstrated high internal reliability (α=.97), was moderately negatively correlated with negative affect (*r* =-.44) and positively correlated with positive affect (*r*=.80), demonstrating evidence of construct validity. The revised SWCh items appear in Appendix D.

CBSEI. The CBSEI was included in half of the survey packets distributed at clinics/group meetings and was included in the online survey. The CBSEI is the only instrument in the childbirth literature designed to measure women's perceived self-efficacy, or ability to cope, with the childbirth process based on Bandura's self-efficacy theory (Bandura, 1986; Lowe, 1993). The CBSEI contains 16 items that reflect coping behaviors, and assesses perceived ability to actually use the behaviors during labor and birth. Although the original CBSEI presents the 16 items for active labor and second stage separately, recent

research has indicated reliability and validity of a short form, integrating active and second stages. The short form was found to be internally consistent (coefficient alpha = .92) and scores were significantly higher in multiparous compared with primiparous women in one sample (Ip, Chung, & Tang, 2006).

PANAS. The PANAS was included in the half of the survey packets distributed at clinics/group meetings (those not containing the CBSEI) and was included in the online survey. The PANAS is a 20-item scale measuring affective states and consists of two separate scales: positive (PA) and negative affect (NA). Twenty adjectives (10 positive and 10 negative) are included on the scale and respondents are asked to rate each item on a 1-5 Likert Scale. Participants in the current study will be asked to rate items as they think of their most recent birth experience.

PSS. The PSS is an 18-item scale that corresponds to DSM-IV criteria for PTSD and was developed specifically to assess PTSD symptoms resulting from childbirth. The PSS has high internal consistency for the total scale (α=.91) and moderate to high reliability for subscales: re-experiencing (.78), avoidance (.80), and arousal (.82), and moderate test-retest stability (coefficient=.74; Ayers & Pickering, 2001). Also, to determine if the childbirth experience meets criteria for a traumatic event, the scale begins with specific items to assess DSM criterion A: 1) perception of threat during birth and 2) negative emotional response (American Psychiatric Association [DSM-IV-TR], 2000). Four items were constructed based on statements formulated in Wijma, Soderquist, and Wijma's (1997) tool for assessment of PTSD following childbirth. Endorsement of these items suggests the childbirth experience was traumatic.

MCSDS. A 10-item version of the MCSDS was included in half of the survey packets distributed at clinics/group meetings, but was not included in the online survey in order to minimize participant burden in the online group. This scale was used to assess participants' social desirability bias. Respondents indicate whether they believe certain feelings or social behaviors accurately describe them. The short version was found to be moderately internally consistent (α=.75) and to be highly correlated with the original 33-item scale (Strahan & Gerbasi, 1972).

Analytic Strategy

Item Development. Based on the results of the pilot study, six of the original SWCh items were retained and two new items were added for a total of eight items. Whereas the pilot study simply replaced the word "life" in the SWLS items with "childbirth" or "my baby's birth," new items were constructed to tailor the SWCh more directly to the childbirth context. Women both anticipate and reflect upon their birth experience as a process that takes place in a unique environment, and also as an event with definitive starting and ending points. Taking into account the particular characteristics of childbirth, greater specificity was added to the scale while still retaining the global PE fit conceptualization of satisfaction.

First, the item, "I did not get what I wanted out of my childbirth experience" was discarded and the new item, "My baby's birth did not go how I wanted it to go" was added. Second, the item, "The conditions of my childbirth experience were terrible" was discarded and the new item, "My childbirth environment was terrible" was added. In an effort to eliminate redundancy, the items, "I am not satisfied with the experience of my baby's birth" and "In most ways, my childbirth experience was far from my ideal" were discarded.

A total of 37 items were adapted from the PCON and from Drew et al. (1989) to describe perceived control of the childbirth environment. Items from the PCON were reworded to include references to labor and delivery; however, not all items contain these words because references to labor and delivery appear in specific instructions for certain groups of items. Instructions for the entire PCCh ask participants to think about the statements in reference to their most recent childbirth experience, which places all items in the childbirth context. Drew et al. (1989) listed a series of statements that women used to describe active involvement in the birth process. These statements were rewritten in a format allowing participants to agree or disagree with whether the statement described their experience.

The items on the PCCh and the SWCh have been reviewed by "content experts" including one childbirth educator, one certified childbirth support professional (i.e., doula), one nurse-midwife, one obstetrician, and at least one individual who is not a perinatal health professional but has recently given birth. This group of individuals examined items from the PCCh, the SWCh, and the other measures in the study for clarity and relevance to postpartum women. Any major problems with the measures as identified by these experts have been corrected and are reflected in the attached measures.

Exploratory Factor Analysis. Exploratory factor analysis (EFA) was used to evaluate the structure underlying the constructs of perceived control and satisfaction, as they pertain to the experience of childbirth. Using EFA allows the researcher to identify the relationships between observed variables or items in order to group a smaller set of items into a single dimension reflecting similar characteristics (Pett, Lackey, & Sullivan, 2003). The goal of the study was to identify a single factor to explain the relationships among the set of 37 items for

the PCCh and eight items for the SWCh. Exploratory rather than confirmatory factor analysis was used because the constructs of interest have not been previously evaluated in the childbirth setting using appropriate methods of estimation.

Item Reduction. Preacher and MacCallum's (2003) suggestions were used in conducting the exploratory factor analysis (EFA). EFA procedures using the Maximum Likelihood (ML) method were used to identify the internal structure of the PCCh and the SWCh. Because distributional normality is an important assumption in ML factor analysis, the data were first examined for normality and items with substantial skew and kurtosis were discarded. EFA models containing from one to four factors were fit to the remaining PCCh items and models containing one and two factors were fit to the SWCh items. In order to ensure that the sample size (N = 187) was adequate for EFA, *a-priori* power calculations were conducted for up to four factors for the PCCh and two factors for the SWCh.

Parallel analysis and interpretability were used to determine the number of factors to retain. Parallel analysis generates eigenvalues from a random set of data based on the same number of variables (i.e., items) and the same number of observed cases. These randomly generated eigenvalues are plotted on a scree plot along with actual eigenvalues. The factors with actual eigenvalues larger than the random eigenvalues are retained because it is assumed that a factor that explains more variance than chance is meaningful (Kahn, 2006). The factor loadings of the final solutions were examined and the highest loading items from the single (or first) common factor reflecting perceived personal control for the PCCh and satisfaction for the SWCh were retained. Items with low loadings (<.35) on the single (or first) common factor and items that cross-loaded on other factors (>.20) were discarded. Items loading on

subsequent factors were given an appropriate label and discussed as separate constructs to be examined in future studies.

Model fit statistics including Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index, (CFI; Bentler, 1990), the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), and the Standardized Root Mean Square Residual (SRMR) of the final models were examined. Traditional criteria for RMSEA are that values less than .05 reflect close fit, but values less than .08 are acceptable (Browne & Cudeck, 1992). Generally, a CFI and TLI greater than .90 and an SRMR below .08 indicate reasonably close fit (Hu & Bentler, 1999; Kline, 1998; Marsh, Balla, & McDonald, 1988). Finally, coefficient alpha was used to ensure that the resulting scales meet adequate psychometric standards of reliability (alpha > .80).

Construct Validity. Ordinary Least Squares (OLS) regression was used to assess correlations between the PCCh and each of the criterion variables, including childbirth self-efficacy, external control, postpartum stress symptoms, satisfaction with childbirth, and social desirability. OLS regression was also used to assess correlations between the SWCh and criterion variables, including positive affect, negative affect, external control, childbirth self-efficacy, postpartum stress symptoms, and social desirability. Regression rather than bivariate correlations were conducted in order to adjust for variables that are related to perceptions of the birth experience, including parity and the number of weeks since delivery. Parity and the number of weeks since delivery were included as covariates in all regression models. Recruitment method (i.e., online vs. clinic/support group) was entered as a covariate in all regression models except those in which the criterion variables were “external control” and “social desirability” because these constructs were only assessed in the clinic/support group participants.

Exploratory Analyses. OLS regression was used to examine differences in perceived control according to type of medical provider, location of delivery, and use of labor support (i.e., presence of a doula). Parity, number of weeks since delivery, and recruitment method were included as covariates. Predictor variables were entered in separate steps in order to evaluate the unique variance explained in perceived control responses. An additional regression analysis was conducted to examine obstetric correlates of childbirth satisfaction, including obstetric complications, length of labor, pain severity, pain management, and method of delivery. Again, predictors were entered in separate steps to compare the utility of each obstetric variable in explaining satisfaction responses. In a final step, perceived control was added to the regression equation to preliminarily examine a biopsychosocial model of childbirth satisfaction. Parity, number of weeks since delivery, recruitment method, and postpartum posttraumatic stress were included as covariates.

Results

Sample Characteristics

Tables 7 through 11 present information about the demographics, health history, pregnancy characteristics, labor and delivery characteristics, and birth outcome for the 187 participants. Each table also includes comparisons between clinic/support group and online participants.

Recruitment and Demographics. As shown in Table 7, the number of weeks since delivery at the time of completing the survey was significantly higher in women recruited online than in clinic/support group participants (M = 12.7 weeks versus 6.2 weeks, respectively). Most of the women in the study were in their late twenties and age did not differ significantly between groups. This was a predominately White, highly educated

Table 7

Participant Recruitment and Demographic Information

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
# Weeks Since Delivery *M(SD)*	6.2(4.3)	12.7(2.4)	8.5(4.9)	11.02**
Age *M(SD)*	28.5(5.2)	29.6(4.7)	28.8(5.1)	1.43
Relationship Status *(Partnered vs. Not partnered)*				4.79*
Married/Living with Partner	102(82%)	58(94%)	160(86%)	
Single/Never Married	21(17%)	3(5%)	24(13%)	
Separated/Divorced	2(1%)	1(1%)	3(1%)	
Race/Ethnicity *(White vs. Non-White)*				2.41
White/Caucasian	101(81%)	56(90%)	157(84%)	
Hispanic/Latina	5(4%)	3(5%)	8(4%)	
African-American	4(3%)	0(0%)	4(2%)	
Asian/Pacific Islander	3(2%)	1(1%)	4(2%)	
American Indian	5(4%)	0(0%)	5(3%)	
Multi-Ethnic	3(2%)	2(3%)	5(3%)	
Other	4(3%)	0(0%)	4(2%)	
Years Lived in U.S.				1.00
Entire Life	116(94%)	56(90%)	172(93%)	
Part of Life	7(6%)	6(10%)	13(7%)	

*= p<.05. **=p<.001.

Table 7 Continued.

Participant Recruitment and Demographic Information

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	χ^2
Education Level *(College Degree vs. No Degree)*				.37
Some High School	4(3%)	1(1%)	5(3%)	
High School Diploma/GED	12(10%)	6(10%)	18(10%)	
Trade/Vocational	3(2%)	0(0%)	3(1%)	
Some College	26(21%)	13(21%)	39(21%)	
Associate's or Bachelor's Degree	35(28%)	24(39%)	59(32%)	
Some Graduate School	11(9%)	7(11%)	18(10%)	
Graduate Degree	33(26%)	11(18%)	44(23%)	

*= p<.05. **=p<.001.

Table 8

Health History and Pregnancy Characteristics

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
Parity				1.19
Primiparous	50(40%)	30(48%)	80(43%)	
Multiparous	75(60%)	32(52%)	107(57%)	
History of Miscarriage/Fetal Demise				.41
Yes	28(22%)	16(27%)	44(24%)	
No	97(78%)	46(73%)	143(76%)	
Most Recent Pregnancy was Planned				7.46**
Yes	46(57%)	48(79%)	94(50%)	
No	79(43%)	14(21%)	93(50%)	
Ever Attended Childbirth Preparation Classes				.90
Yes	80(64%)	44(71%)	124(66%)	
No	45(36%)	18(29%)	63(34%)	
Exercise >30 minutes per week*				.00
Yes	72(89%)	55(89%)	127(89%)	
No	9(11%)	7(11%)	16(11%)	
Smoking Status*				
(Smoker vs. Non-smoker)				.40
Never Smoker	47(59%)	35(56%)	82(58%)	
Former Smoker	24(30%)	22(36%)	46(32%)	
Current Smoker	9(11%)	5(8%)	14(10%)	

* = percentages based on only a subset of the clinic/class sample (n=81). **=p<.001.

Table 8 Continued.

Health History and Pregnancy Characteristics

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
Health Conditions/ Pregnancy Complications				
(Any Complication vs. No Complications)				.06
Diabetes	14(11%)	4(7%)	18(10%)	
Hypertension/ Preeclampsia	10(8%)	8(13%)	18(10%)	
Anemia	25(20%)	8(13%)	31(17%)	
Asthma/Pulmonary Disease	6(5%)	8(13%)	14(7%)	
Hypothyroidism	5(4%)	3(4.8%)	8(4%)	
Epilepsy/Seizure Disorder	2(1%)	0(0%)	2(1%)	
Short Cervix/Cervical Dilation/Cerclage	5(4%)	1(1%)	6(3%)	
Subchorionic Hemorrhage	5(4%)	0(0%)	5(3%)	
Low Amniotic Fluid	4(3%)	1(1%)	5(3%)	
Restricted Fetal Growth	3(2%)	1(1%)	4(2%)	
Preterm Labor/ Rupture of membranes	14(11%)	4(7%)	18(10%)	
Mood/Anxiety Disorder	17(14%)	9(15%)	26(14%)	
No Complications Reported	58(46%)	30(48%)	88(47%)	

**=p<.001.

Table 9

Labor and Delivery Characteristics

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
Gestational Age at Birth				
(Pre- vs. Full/Post-term)				2.43
Pre-term (<37 weeks)	12(10%)	2(3%)	14(7%)	
Full-term (37-40 weeks)	100(80%)	49(79%)	149(80%)	
Post-term (>40 weeks)	13(10%)	11(18%)	24(13%)	
Location of Delivery				N/A
Hospital	123(99%)	50(81%)	173(93%)	
Birth Center	0(0%)	9(15%)	9(5%)	
Home	1(.5%)	3(5%)	4(2%)	
Other	1(.5%)	0(0%)	1(.5%)	
Medical Provider at Delivery				N/A
Obstetrician	114(92%)	44(71%)	158(85%)	
Midwife	0(0%)	12(19%)	12(6%)	
Family Practice Physician	8(6%)	5(8%)	13(7%)	
Nursing Staff Only	1(.5%)	0(0%)	1(.5%)	
None	2(1.5%)	1(2%)	3(2%)	
Labor/Delivery Support				N/A
Spouse/Partner	116(93%)	62(100%)	178(95%)	
Relatives/Friends Only	9(7%)	0(0%)	9(5%)	
Doula/Professional Labor Support	12(10%)	3(5%)	15(8%)	
None/Medical Staff Only	0(0%)	0(0%)	0(0%)	

Note. χ^2 analyses were not performed if cases were absent in one or more cells.
**=p<.001.

Table 9 Continued.

Labor and Delivery Characteristics

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
Duration of Labor (Hours)				
M(SD)	9.1(7.6)	8.3(6.6)	8.9(7.3)	-.67
Obstetric Interventions				
Labor Induced with Pitocin	60(48%)	22(36%)	82(44%)	2.82
Labor Augmented with Pitocin	50(40%)	30(48%)	80(44%)	1.11
Artificial Rupture of Membranes (AROM)	53(42%)	26(42%)	79(42%)	.01
Continuous External Electronic Fetal Monitoring	79(63%)	42(68%)	121(65%)	.31
Internal Fetal Monitoring	26(21%)	14(23%)	40(21%)	.06
Pain Medications				
(Any medications vs. no medications)				1.91
Intravenous (IV) Medication Only	11(9%)	3(5%)	14(8%)	
Epidural Only	57(46%)	28(45%)	85(46%)	
IV + Epidural	35(28%)	15(24%)	50(27%)	
None	21(17%)	15(24%)	36(19%)	

Note. χ^2 analyses were not performed if cases were absent in one or more cells.
**=p<.001.

Table 10

Obstetric Complications and Delivery Method

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
Obstetric Complications				
(Any Complications vs. No Complications)				7.08**
Cervix stopped dilating	19(15%)	11(18%)	30(16%)	
Maternal Hyper/hypotension	9(7%)	10(16%)	19(10%)	
Umbilical Cord Prolapse	1(.5%)	1(2%)	2(1%)	
Maternal Fever/Infection	1(.5%)	3(5%)	4(2%)	
Fetal Heart Decelerations/Distress	19(15%)	16(26%)	35(19%)	
Baby Got Stuck	10(8%)	5(8%)	15(8%)	
Meconium	10(8%)	9(15%)	19(10%)	
Breech Presentation	2(2%)	2(3%)	4(2%)	
Delivery Method				
(Vaginal vs. Cesarean)				.10
Spontaneous Vaginal	98(78%)	46(74%)	144(77%)	
Assisted Vaginal	7(6%)	5(8%)	12(6%)	
Cesarean After Labor Onset	18(14%)	10(16%)	27(14%)	
Vaginal Birth After Cesarean (VBAC)	2(2%)	1(2%)	3(2%)	

**=p<.001.

Table 11

Birth Outcome

	Postpartum Clinic/ Breastfeeding Group (*n*=125)	Babycenter.com (*n*=62)	Total (*N*=187)	*t* or χ^2
Birth Weight (ounces)	118.8(18.7)	121.6(15.5)	119.8(17.7)	1.05
Apgar Scores				N/A
Total > 7	20(16%)	27(44%)	47(25%)	
Total < 6	2(2%)	1(2%)	3(2%)	
Did Not Know Apgar Scores	76(61%)	0(0%)	76(41%)	
Unknown/Missing	26(21%)	34(55%)	60(32%)	
Neonatal Intensive Care (NICU)				N/A
Yes	3(2%)	6(10%)	9(5%)	
No	122(98%)	56(90%)	178(95%)	
Initiated Breastfeeding Immediately after birth				.13
Yes	74(59%)	35(57%)	82(44%)	
No	51(41%)	27(43%)	105(56%)	
Breastfeeding Currently				6.20*
Yes	103(82%)	41(66%)	144(77%)	
No	22(18%)	21(34%)	43(22%)	

Note. χ^2 analyses were not performed if cases were absent in one or more cells.
**=p<.001.

sample. Only 16% of the combined sample identified as non-White or multi-ethnic, and 64% of the combined sample had attained at least a two-year college degree. The groups did not differ significantly in terms of highest level of education attained. Although most women in the combined sample (86%) reported that they were married or had a partner, there were significantly more women in the clinic/support group sample who did not have a partner.

Health and Pregnancy Characteristics. Table 8 presents pregnancy information data collected via the two recruitment methods. As can be seen in this table, the majority of the participants were not first time mothers and the groups did not differ significantly in terms of parity. Half of the mothers in the study reported that their most recent pregnancy had been planned, and the proportion of mothers reporting that the pregnancy was not planned was significantly higher among the clinic/support group participants. About one-quarter of the sample reported a history of miscarriage or fetal demise with a previous pregnancy, which did not significantly differ across recruitment methods. Most of the participants reported that they had attended childbirth preparation classes either during their most recent or a previous pregnancy, and most engaged in some physical activity and did not smoke during their most recent pregnancy. The two groups did not differ in terms of childbirth class attendance, physical activity, or smoking status. A small majority of the total sample reported being diagnosed with a medical condition or pregnancy complication, the most common of which were anemia, mood or anxiety disorder, diabetes, hypertension/preeclampsia, and symptoms of preterm labor. There were no differences between the two groups in the frequency of medical conditions or pregnancy complications.

Labor and Delivery Characteristics. As shown in Table 9, most of the participants delivered at term, with 20% delivering either pre-term (7%) or post-term (13%). There were

no differences between the two recruitment groups in gestational age at birth. Most women delivered in a hospital with an obstetrician and a spouse or partner in attendance. A very small percentage (2%) reported that they unexpectedly delivered at home or while in transport to a medical facility, with no medical provider present. None of the participants reported that they were completely without support from a partner, family member, or friend during labor or delivery.

Participants reported an average duration of labor of 8.9 hours (*SD* = 7.3) from the time contractions were approximately five minutes apart to the time of delivery. Nearly half of the participants reported that their labor was induced and/or augmented with pitocin (44%), and most reported having continuous electronic fetal monitoring during labor. In addition, most women (81%) also elected to have some form of pain relief during labor such as intravenous medication, an epidural, or both. There were no differences between the recruitment groups in duration of labor, obstetric interventions, or use or type of pain medications.

Obstetric Complications and Birth Outcome. Table 10 presents information regarding complications during labor and delivery as well as method of delivery. More than two-thirds of the sample reported experiencing some type of complication during labor and delivery, and complications were reported significantly more frequently in the online group (93%) than among the clinic/support group participants (56%). The most common labor and delivery complications were fetal distress/heart decelerations, labor that did not progress, maternal hypertension or hypotension, and the presence of meconium. The majority of participants (77%) delivered via normal spontaneous vaginal delivery with a small number requiring an assisted vaginal delivery (6%). The percentage of women who delivered via

cesarean after labor onset was 14%. There were no differences between the online and clinic/support group participants in the experience of obstetric complications or method of delivery.

Despite the high rate of reported labor and delivery complications, most women gave birth to healthy, normal-weight infants. As shown in Table 11, most participants either did not remember or did not report their baby's Apgar scores; however, only a small percentage (5%) reported that their infants required admission to the neonatal intensive care unit (NICU). There were no differences in birth weight between the two recruitment groups. Many participants attempted breastfeeding immediately after delivery, and most (77%) reported that they were still breastfeeding at the time they completed the survey. Significantly more clinic/support group participants were breastfeeding at the time of the study than the online participants.

Although the data illustrate that many participants experienced some difficulty either during their pregnancy or the childbirth process, generally physical health outcomes were positive. In a large subset of the sample (N = 173), maternal psychological health was assessed using a self-report tool to identify symptoms of posttraumatic stress during the postpartum period (PSS). In addition, four items were constructed to determine whether the childbirth experience qualified as a "traumatic" experience based on DSM criteria. Results indicated that 9% of participants described their childbirth as "traumatic" and substantially greater proportion (28%) reported significant symptoms on at least one of the PTSD symptom clusters (i.e., re-experiencing, avoidance, arousal). Because a number of women completed the survey within four weeks of delivery, a more accurate interpretation of this data suggests that approximately 5% of women were experiencing *acute* rather than

posttraumatic stress symptoms. In other words, although a smaller number of women reported a traumatic birth experience, a larger number reported symptoms indicative of an acute or posttraumatic stress response.

Excluded Data. Analyses were conducted to determine if there were differences between the final sample of 187 responses and the 52 responses that were excluded because they were missing important information about the most recent delivery (i.e., method of delivery). Results indicate that there were no differences between the two groups in age, relationship status, ethnicity, education level, or the number of years lived in the U.S. In addition, both groups included similar proportions of women who perceived their childbirth experiences as traumatic. These analyses suggest that the final sample was not biased in terms of demographic characteristics or perception of the birth experience. The group of excluded responses did however, include a higher proportion of multiparous women than the final sample, $\chi^2[1, N = 239] = 5.07$, $p = .024$.

Exploratory Factor Analysis: Perceived Control in Childbirth Scale

Preliminary Data Reduction. Descriptive statistics for the 37 PCCh items are provided in Table 12. Of these items, 13 were reverse scored so that higher scores would reflect higher perceived control. Only one item (#11) was discarded because of significant skew (-3.02) and kurtosis (8.31). The remaining 36 items were retained for EFA.

Factor Extraction Method. Thirty-six items were included in the EFA using the ML extraction method to identify factors. The ML method is used to assess the "likelihood that the correlation matrix is derived from a population where the attained factor structure underlies the scores on the variables" (Kahn, 2006). Several EFA models were fit to the data using the MLR estimator in Mplus 5.0. Mplus was used rather than CEFA because it allows

Table 12

Descriptive Statistics for the Perceived Control in Childbirth Items

	N	*Mean*	*SD*	*Skewness*	*Kurtosis*
1. I was able to participate in making decisions about how to manage my labor and birth.	186	5.35	1.20	-2.09	3.90
2. When I was in labor, my medical care providers decided what procedures I would have.*	186	3.56	1.72	.08	-1.25
3. My medical care providers were in control of my birth environment.*	185	3.31	1.79	.23	-1.30
4. I was in control of my pain medication (deciding if and when I wanted it and how much).	186	5.33	1.29	-2.31	4.67
5. My medical care providers took charge of managing my labor and birth.*	185	3.32	1.69	.24	-1.17
6. I was able to choose the type of pain medication I would receive.	187	5.35	1.39	-2.19	3.70
7. My medical care providers asked my opinion about each un-planned procedure before it was performed.	180	5.02	1.50	-1.51	1.13
8. I was able to move around freely during labor if I wanted to.	186	4.10	1.97	-.49	-1.39
9. I was able to move around as best I could even though I had certain interventions (such as IVs, fetal monitoring).	182	4.84	1.64	-.13	.33
10. I was able to have a bath or a shower if I wanted one.	183	4.34	1.94	-.68	-1.13
11. I was able to have exactly the people I wanted with me during labor and birth.	186	5.57	1.16	-3.02	8.31
12. While I was in labor, I was able to decide how to be most comfortable.	187	5.05	1.38	-1.51	1.53
13. I was able to take charge of managing my labor and birth.	186	4.82	1.47	-1.19	.43
14. I was able to control the labor and delivery environment.	187	4.59	1.56	-.97	-.10

* = Indicates reverse scored item.

Table 12 Continued.

Descriptive Statistics for the Perceived Control in Childbirth Items

	N	*Mean*	*SD*	*Skewness*	*Kurtosis*
15. I could not control the number of people coming in and out of the labor/birth room.*	186	4.28	1.87	-.62	-1.13
16. I was able to hold the baby immediately after the birth if I wanted to.	186	4.92	1.82	-1.37	.23
17. I was given choices before procedures were decided upon.	187	4.93	1.50	-1.38	.82
18. I did not feel that I was in control of my birth environment.*	186	4.89	1.53	-1.17	.07
During my labor and birth, when I was told about the procedures I felt. . . .					
19. That I could not question my medical care provider's decisions.*	185	4.89	1.54	-1.29	.48
20. That I did not have much influence over what procedures were done.*	185	4.78	1.59	-1.11	-.02
21. That I was in control of the situation.	185	4.58	1.52	-.10	-.04
22. That my medical care providers told me what I should do.*	185	3.65	1.68	.12	-1.31
23. That I could get all my questions answered.	186	5.49	1.07	-2.69	7.31
24. That I was able to actively influence my labor and delivery care.	186	5.04	1.26	-1.49	1.74
25. That what I said or did made no difference in what occurred.*	186	5.22	1.24	-1.75	2.52
26. That my medical care providers decided what was best for me.*	186	4.41	1.66	1.66	-.71
From the time I arrived at the hospital or birth center, I felt….(Or, from the time my medical care providers arrived at my home, I felt…)					
27. Very much "on top" of the situation.	186	4.42	1.59	-.80	-.49
28. At a loss to know what I would be experiencing.*	186	4.41	1.66	-.71	-.73

* = Indicates reverse scored item.

Table 12 Continued.

Descriptive Statistics for the Perceived Control in Childbirth Items

	N	*Mean*	*SD*	*Skewness*	*Kurtosis*
29. If I wanted to, I could change the procedures I was receiving.	185	4.16	1.65	-.58	-.78
30. I knew what the purpose and effects of the procedures were.	186	5.32	1.09	-2.23	5.63
In regards to the routine parts of my labor and delivery care…					
31. I was given as much control over my activities during labor and birth as I would normally have at home.	187	4.07	1.70	-.50	-1.01
32. I could change when and how routine procedures were done.	186	3.88	1.63	-.32	-.96
33. I was unable to have a say in what the routine procedures were while I was under the care of medical staff.*	187	4.18	1.61	-.47	-.92
34. I could tell my medical care providers about my preferences for my care.	186	5.38	1.01	-2.03	5.15
35. I was given choices about the routine parts of my labor and delivery care.	187	4.89	1.30	-1.18	.71
36. If I asked my medical care providers to do something differently during labor and delivery, they usually did it.	186	4.82	1.26	-1.19	1.15
37. I did not know in advance what routine treatments I would have or when they would occur.*	186	4.84	1.51	-1.26	.55

* = Indicates reverse scored item.

researchers to use all available data in samples with missing responses, via the MLR estimator, and is more robust to violations of distributional normality (Muthen & Muthen, 2009). In this study, 14 participants failed to answer one or more of the 36 PCCh items, resulting in < 1% missing data. One, two, three, and four-factor solutions were examined using the Oblique Geomin rotation method because it was expected that any underlying factors would be correlated.

Power. In order to ensure that the sample size was adequate for EFA, *a priori* power calculations were conducted using the number of items (36) that were entered into the factor analysis. Using guidelines established by MacCallum and colleagues (1996) for determining power and sample size, alpha was set at .05 and desired power was set at .80. Using these parameters, the automated online program "Computing Power and Minimum Sample Size for RMSEA" (Preacher and Coffman, 2006) was used to estimate the sample size necessary to reject a model if it did not fit the data closely. Computations were conducted for models with up to four factors. Calculations indicated that a minimum sample of $N = 49$ would be necessary to achieve desired power.

Factor Retention/Factor Loadings. Four models containing from one to four factors were applied to the 36 PCCh items. Parallel analysis was used in order to determine the number of factors to retain using a web program created by Patil, Singh, Mishra, and Donovan (2007). Figure 4 shows the scree plot of random eigenvalues generated from random data based on 187 cases and 36 variables. According to this method, three factors were retained.

Figure 4. Scree Plot and Parallel Analysis of 36 Perceived Control In Childbirth Items

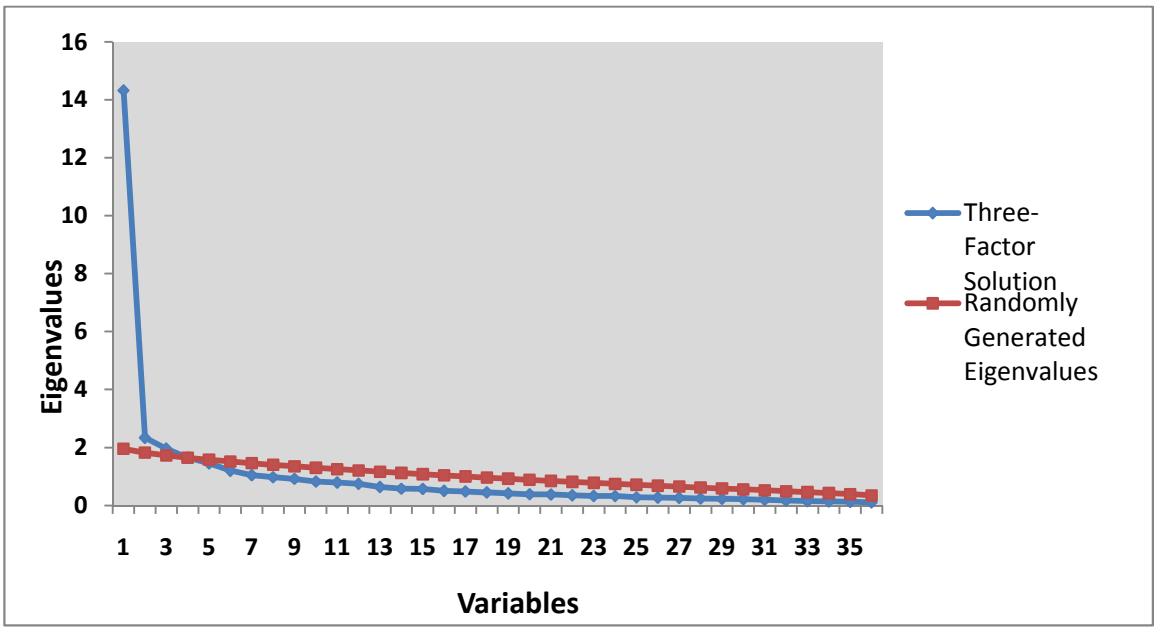


Table 13 contains MLR factor loadings for each of the 36 items from the pattern matrix of the three-factor solution. A total of 28 items loaded on the first factor, with loadings ranging from .38 to .87. Examination of these items suggested that this factor best reflects perceptions of involvement in managing labor and birth and the ability to influence the birthing environment. Six items loaded on the second factor (loadings ranged from .44 to .82), which reflect women's perceptions of the degree to which they were free to move around during labor or use various comfort techniques. In other words, Factor 2 seemed to tap women's perceived control over activity during labor. Finally, five of the 13 reverse scored items loaded on the third factor (loadings ranged .40 - .82), which reflects the perception that medical providers were in control of the birth environment.

Table 13

Maximum Likelihood Factor Loadings for the 36 Perceived Control in Childbirth Items

	Factor 1	Factor 2	Factor 3
1. I was able to participate in making decisions about how to manage my labor and birth.	**.76**	-.04	.01
2. When I was in labor, my medical care providers decided what procedures I would have.*	.17	.05	**.64**
3. My medical care providers were in control of my birth environment.*	.02	.00	**.80**
4. I was in control of my pain medication (deciding if and when I wanted it and how much).	**.55**	.20	-.07
5. My medical care providers took charge of managing my labor and birth.*	.05	-.05	**.82**
6. I was able to choose the type of pain medication I would receive.	**.53**	-.15	-.06
7. My medical care providers asked my opinion about each un-planned procedure before it was performed.	**.67**	.01	-.16
8. I was able to move around freely during labor if I wanted to.	.09	**.82**	-.01
9. I was able to move around as best I could even though I had certain interventions (such as IVs, fetal monitoring).	.33	**.57**	-.09
10. I was able to have a bath or a shower if I wanted one.	-.01	**.54**	.15
12. While I was in labor, I was able to decide how to be most comfortable.	**.54**	**.46**	-.06
13. I was able to take charge of managing my labor and birth.	**.77**	.19	.00
14. I was able to control the labor and delivery environment.	**.74**	.01	.01

Note. Factor loadings > .35 are underlined in bold. Factor loadings > .20 are underlined.
* = Indicates reverse scored item.

Table 13 Continued.

Maximum Likelihood Factor Loadings for the 36 Perceived Control in Childbirth Items

	Factor 1	Factor 2	Factor 3
15. I could not control the number of people coming in and out of the labor/birth room.*	**.44**	-.01	.06
16. I was able to hold the baby immediately after the birth if I wanted to.	**.42**	.01	.00
17. I was given choices before procedures were decided upon.	**.75**	.01	-.02
18. I did not feel that I was in control of my birth environment.*	**.87**	-.01	.01
During my labor and birth, when I was told about the procedures I felt. . . .			
19. That I could not question my medical care provider's decisions.*	**.57**	-.03	-.10
20. That I did not have much influence over what procedures were done.*	**.82**	-.06	-.05
21. That I was in control of the situation.	**.77**	-.06	.10
22. That my medical care providers told me what I should do.*	.22	.01	**.40**
23. That I could get all my questions answered.	**.68**	.01	-.17
24. That I was able to actively influence my labor and delivery care.	**.77**	.12	.07
25. That what I said or did made no difference in what occurred.*	**.72**	-.06	-.01
26. That my medical care providers decided what was best for me.*	-.04	.00	**.69**
From the time I arrived at the hospital or birth center, I felt….(Or, from the time my medical care providers arrived at my home, I felt…)			
27. Very much "on top" of the situation.	**.70**	.08	.05

Note. Factor loadings > .35 are underlined in bold. Factor loadings > .20 are underlined.
* = Indicates reverse scored item.

Table 13 Continued.

Maximum Likelihood Factor Loadings for the 36 Perceived Control in Childbirth Items

	Factor 1	Factor 2	Factor 3
28. At a loss to know what I would be experiencing.*	**.47**	.11	.02
29. If I wanted to, I could change the procedures I was receiving.	**.59**	.15	.09
In regards to the routine parts of my labor and delivery care…			
30. I knew what the purpose and effects of the procedures were.	**.54**	.00	-.07
31. I was given as much control over my activities during labor and birth as I would normally have at home.	**.41**	**.48**	.05
32. I could change when and how routine procedures were done.	**.38**	**.44**	.12
33. I was unable to have a say in what the routine procedures were while I was under the care of medical staff.*	**.39**	-.02	.02
34. I could tell my medical care providers about my preferences for my care.	**.66**	.08	-.04
35. I was given choices about the routine parts of my labor and delivery care.	**.54**	.18	.07
36. If I asked my medical care providers to do something differently during labor and delivery, they usually did it.	**.65**	.16	.02
37. I did not know in advance what routine treatments I would have or when they would occur.*	**.50**	-.06	-.02

Note. Factor loadings > .35 are underlined in bold. Factor loadings > .20 are underlined.
* = Indicates reverse scored item.

Table 14 provides the factor correlations for the three-factor model. The correlations suggest that these factors are related, but not highly enough to collapse items into a unidimensional scale. The third factor suggests that perceptions that providers were in control of the birth environment are not necessarily synonymous with loss of *personal* control. The first and third factors were moderately correlated (r = .48) indicating only 23% shared variance between personal control and provider control. It was concluded that the five reverse-scored items loading on the third factor were not consistent with the theoretical conceptualization of perceived *personal* control of the birth environment, and should not be retained in the final item set.

Table 14

Exploratory Factor Analysis Maximum Likelihood Factor Correlations for the 36 Perceived Control in Childbirth Items with Three Factors

	Control Over Birth Environment	Control Over Activity During Labor	Provider Control
Factor 1	1.00		
Factor 2	.43	1.00	
Factor 3	.48	.30	1.00

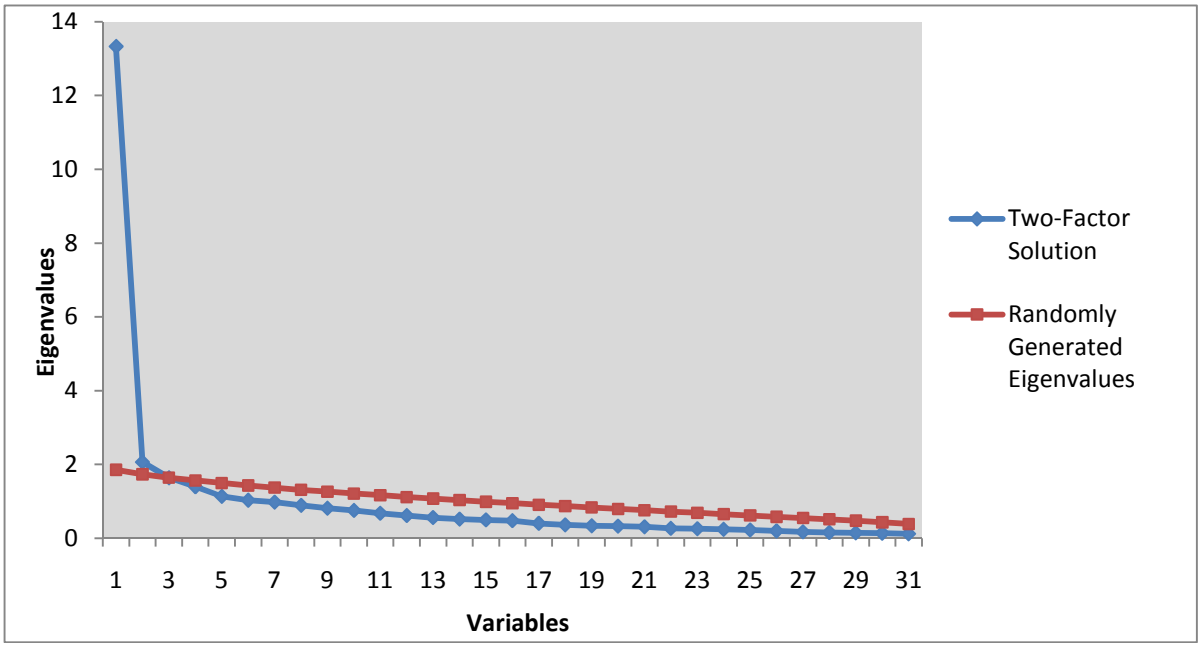
The three-factor solution was examined for interpretability, defined as a factor structure in which items load on only one factor (loadings > .35) and do not cross-load on other factors (loadings < .20). As shown in Table 13, one item (#4) that loaded on the first factor also cross-loaded on the second factor, and three items (#s 12, 31, and 32) appeared to share roughly equal variance with both the first and second factors. One item that loaded on

the third factor also cross-loaded on the first factor. In other words, only 24 items loaded exclusively on the first factor, only two items loaded exclusively on the second factor, and only four items loaded exclusively on the third factor.

Based on the results of the EFA, it was determined that the five items with loadings > .35 on the third factor should be discarded from the final scale and examined as a separate construct (i.e., "control exerted by medical providers"). An additional four items were considered for elimination due to substantial loadings (> .35) on multiple factors. Because factor patterns in EFA are based on all the items' variances and covariances, removing all nine items at once would likely have resulted in a different final item set than if items were removed one-by-one or in smaller groups. Therefore, a step-wise procedure was employed in order to arrive at the final set of items loading on the first common factor. *A-priori* power calculations were conducted for each of the steps and indicated that the sample was sufficient to detect poor fit in all of the subsequent models.

First, only the five items with loadings > .35 on the third factor (i.e., perceived control exerted by medical providers) were eliminated on the basis of theory, as these items did not reflect perceived personal control. One, two, and three-factor EFA models were fit to the remaining 31 items. Parallel analysis indicated that two factors should be retained (see Figure 5). The correlation between the two factors, $r = .48$, suggested that the factors were not correlated highly enough to combine the two subscales. In other words, perceived personal control in childbirth seems to consist of two correlated factors: 1) control over the environment/medical decisions and 2) control in choosing comfort techniques. However, a total of eight items shared meaningful variance with both factors (MLR factor loadings are presented in Table 15). Only two of the six items with loadings > .35 on the second

Figure 5. Scree Plot and Parallel Analysis for 31 Perceived Control in Childbirth Items



factor did not cross-load on the first factor. Because the goal of the current study was to develop a single-factor instrument, it was initially determined that only the 21 items that loaded on the first factor (with no cross-loadings) would be retained.

It is important to note that the interpretability of a factor solution is subject to influence of the factor rotation method, because different rotation methods will yield slightly different parameter estimates. Rather than simply relying on the default rotation method in Mplus 5.0 (i.e., Geomin) each factor solution was also examined using the Oblique Quartimin rotation method. Using the same criteria for interpretability outlined above, results of the additional analyses

Table 15

Maximum Likelihood Factor Loadings for 31 Perceived Control in Childbirth Items

	Factor 1	Factor 2
1. I was able to participate in making decisions about how to manage my labor and birth.	**.76**	-.02
4. I was in control of my pain medication (deciding if and when I wanted it and how much).	**.54**	-.21
6. I was able to choose the type of pain medication I would receive.	**.52**	-.16
7. My medical care providers asked my opinion about each un-planned procedure before it was performed.	**.59**	.00
8. I was able to move around freely during labor if I wanted to.	.00	**.85**
9. I was able to move around as best I could even though I had certain interventions (such as IVs, fetal monitoring).	.23	**.59**
10. I was able to have a bath or a shower if I wanted one.	-.02	**.59**
12. While I was in labor, I was able to decide how to be most comfortable.	**.47**	**.48**
13. I was able to take charge of managing my labor and birth.	**.74**	.22
14. I was able to control the labor and delivery environment.	**.72**	.13
15. I could not control the number of people coming in and out of the labor/birth room.*	**.47**	-.08
16. I was able to hold the baby immediately after the birth if I wanted to.	**.41**	.12
17. I was given choices before procedures were decided upon.	**.73**	.03
18. I did not feel that I was in control of my birth environment.*	**.87**	-.07

Note. Factor loadings > .35 are underlined in bold. Factor loadings > .20 are underlined.
* = Indicates reverse scored item.

Table 15 Continued.

Maximum Likelihood Factor Loadings for 31 Perceived Control in Childbirth Items

	Factor 1	Factor 2
During my labor and birth, when I was told about the procedures I felt. . . .		
19. That I could not question my medical care provider's decisions.*	**.52**	-.02
20. That I did not have much influence over what procedures were done.*	**.80**	-.04
21. That I was in control of the situation.	**.81**	-.01
23. That I could get all my questions answered.	**.60**	.00
24. That I was able to actively influence my labor and delivery care.	**.77**	.16
25. That what I said or did made no difference in what occurred.*	**.70**	-.04
From the time I arrived at the hospital or birth center, I felt….(Or, from the time my medical care providers arrived at my home, I felt…)		
27. Very much "on top" of the situation.	**.70**	.12
28. At a loss to know what I would be experiencing.*	**.46**	.14
29. If I wanted to, I could change the procedures I was receiving.	**.60**	.19
30. I knew what the purpose and effects of the procedures were.	**.50**	.01
In regards to the routine parts of my labor and delivery care…		
31. I was given as much control over my activities during labor and birth as I would normally have at home.	**.37**	**.54**
32. I could change when and how routine procedures were done.	**.38**	**.50**

Note. Factor loadings > .35 are underlined in bold. Factor loadings > .20 are underlined.
* = Indicates reverse scored item.

Table 15 Continued.

Maximum Likelihood Factor Loadings for 31 Perceived Control in Childbirth Items

	Factor 1	Factor 2
In regards to the routine parts of my labor and delivery care…		
33. I was unable to have a say in what the routine procedures were while I was under the care of medical staff.*	**.40**	.00
34. I could tell my medical care providers about my preferences for my care.	**.62**	.10
35. I was given choices about the routine parts of my labor and delivery care.	**.52**	.23
36. If I asked my medical care providers to do something differently during labor and delivery, they usually did it.	**.63**	.20
37. I did not know in advance what routine treatments I would have or when they would occur.*	**.48**	-.05

Note. Factor loadings > .35 are underlined in bold. Factor loadings > .20 are underlined.
* = Indicates reverse scored item.

supported the retention of the same 21 items, with the addition of one item (#36). This item, "If I asked my medical care providers to do something different during labor and delivery, they usually did it," was retained because it was considered to be a strong exemplar of one's perceived ability to regulate the birth environment.

Next, one and two-factor EFA models were fit to the remaining 22 items and parallel analysis supported the retention of a single factor (see Figure 6). MLR factor loadings for the 22 items are provided in Table 16. The highest loading items (>.50) were selected for inclusion in a single-factor EFA model in order to examine model fit statistics. A single-factor model containing the final set of 17 items demonstrated moderate fit (CFI = .89; TLI = .87; SRMR = .055; RMSEA = .075; 90% CI = .062-.088). [1]

Internal Consistency. Reliability analysis indicated that the 17-item scale had a coefficient alpha of .94 and alpha did not fall below .93 if any one item is deleted. This indicates a scale with extremely high internal consistency. This analysis also indicates that it may be appropriate to further winnow down the number of items on the current scale.

Exploratory Factor Analysis: Satisfaction with Childbirth Scale

Preliminary Data Reduction. Descriptive statistics for the eight SWCh items are provided in Table 17. Of these items, three were reverse scored so that higher scores would reflect higher satisfaction. Only one item (#8) was discarded because of significant skew (-3.20) and kurtosis (10.76). The remaining seven items were retained for EFA.

[1] Review of the five items with factor loadings below .50 indicated that certain items may not apply to all women (e.g., "I was able to choose the type of pain medication I would receive") or may have been awkwardly worded (e.g., "I was unable to have a say in what the routine procedures were while I was under the care of medical staff"). Reliability analysis also indicated that the scale's internal consistency was not affected by the removal of these items.

Figure 6. Scree Plot and Parallel Analysis for 22 Perceived Control in Childbirth Items

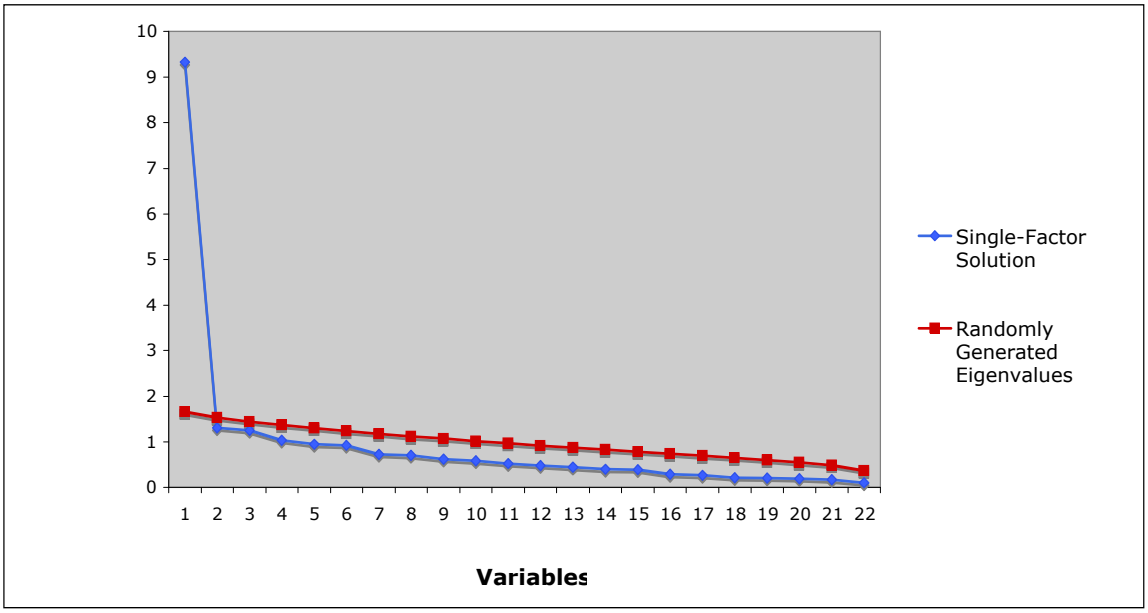


Table 16

Maximum Likelihood Factor Loadings for 22 Perceived Control in Childbirth Items

	Factor 1
1. I was able to participate in making decisions about how to manage my labor and birth.	**.75**
6. I was able to choose the type of pain medication I would receive.	.43
7. My medical care providers asked my opinion about each un-planned procedure before it was performed.	**.59**
14. I was able to control the labor and delivery environment.	**.76**
15. I could not control the number of people coming in and out of the labor/birth room.*	.43
16. I was able to hold the baby immediately after the birth if I wanted to.	.48
17. I was given choices before procedures were decided upon.	**.75**
18. I did not feel that I was in control of my birth environment.*	**.83**
During my labor and birth, when I was told about the procedures I felt. . . .	
19. That I could not question my medical care provider's decisions.*	**.52**
20. That I did not have much influence over what procedures were done.*	**.79**
21. That I was in control of the situation.	**.78**
23. That I could get all my questions answered.	**.60**
24. That I was able to actively influence my labor and delivery care.	**.85**
25. That what I said or did made no difference in what occurred.*	**.69**

Note. Factor loadings > .35 are underlined in bold.
* = Indicates reverse scored item.

Table 16 Continued.

Maximum Likelihood Factor Loadings for 22 Perceived Control in Childbirth Items

	Factor 1
From the time I arrived at the hospital or birth center, I felt….(Or, from the time my medical care providers arrived at my home, I felt…)	
27. Very much "on top" of the situation.	**.75**
28. At a loss to know what I would be experiencing.*	**.53**
29. If I wanted to, I could change the procedures I was receiving.	**.69**
30. I knew what the purpose and effects of the procedures were.	**.50**
In regards to the routine parts of my labor and delivery care…	
33. I was unable to have a say in what the routine procedures were while I was under the care of medical staff.*	.40
34. I could tell my medical care providers about my preferences for my care.	**.68**
36. If I asked my medical care providers to do something different during labor and delivery, they usually did it.	**.72**
37. I did not know in advance what routine treatments I would have or when they would occur.*	.46

Note. Factor loadings > .35 are underlined in bold.
* = Indicates reverse scored item.

Table 17

Descriptive Statistics for the Satisfaction with Childbirth Items

	N	*Mean*	*SD*	*Skewness*	*Kurtosis*
1. In most ways, my childbirth experience was close to my ideal.	186	5.40	1.96	-1.19	.05
2. My baby's birth did not go the way I wanted it to go.*	186	5.31	2.04	-.92	-.67
3. The conditions of my childbirth experience were excellent.	186	5.61	1.70	-1.28	.60
4. If I could do it over, I would change some things about my childbirth experience.*	186	4.37	2.19	-.19	-1.54
5. I am satisfied with the experience of my baby's birth.	185	5.86	1.58	-1.64	1.86
6. I got what I wanted out of my childbirth experience.	186	5.84	1.49	-1.48	1.49
7. If I could do it over, I would change almost nothing about my childbirth experience.	186	4.90	2.12	-.56	-1.21
8. My childbirth environment was terrible.*	185	6.50	1.18	-3.20	10.76

* = Indicates reverse scored item.

Factor Extraction Method. Seven items were included in the EFA using the ML extraction method to identify factors. EFA models were fit to the data using the MLR estimator in Mplus 5.0. The MLR estimator was used due to a small percentage of missing data points (< 1%) within the SWCh items. One and two-factor solutions were examined using the Oblique Geomin rotation method because it was expected that any underlying factors would be correlated.

Power. In order to ensure that the sample size was adequate for EFA, *a priori* power calculations were conducted using the number of items (7) that were entered into the factor analysis. Using the automated online program "Computing Power and Minimum Sample Size for RMSEA" (Preacher & Coffman, 2006), alpha was set at .05 and desired power was set at .80. Computations were conducted for models with up to two factors. The minimum sample size necessary to identify up to two factors in the 7-item SWCh was $N = 375$. Given that the current sample was insufficient to detect poor fit in a 2-factor model, criteria other than model fit (e.g., parallel analysis, pattern of factor loadings) were used to identify the most parsimonious model.

Factor Retention/Factor Loadings. Two models containing from one to two factors were applied to the seven SWCh items. Parallel analysis was used in order to determine the number of factors to retain. Figure 7 shows the scree plot of random eigenvalues generated from random data based on 187 cases and seven variables. According to this method, one factor was retained.

Table 18 contains MLR factor loadings for each of the seven items from the pattern matrix of the one-factor solution. All seven items loaded highly on the single factor, with

Figure 7. Scree Plot and Parallel Analysis for the 7 Satisfaction with Childbirth Items

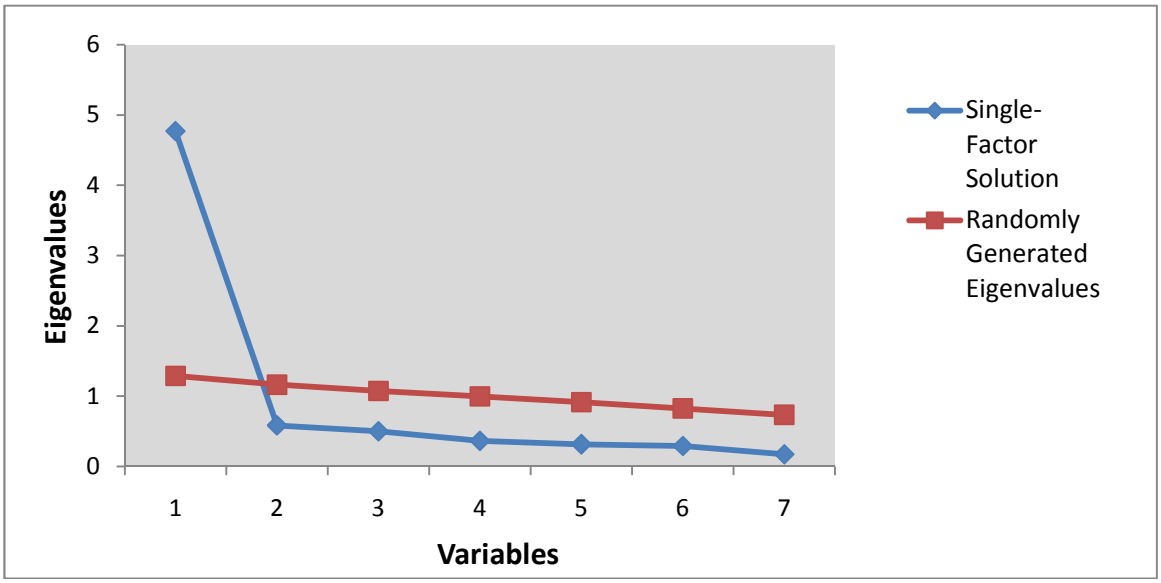


Table 18

Maximum Likelihood Factor Loadings for the Satisfaction with Childbirth Items

	Factor 1
1. In most ways, my childbirth experience was close to my ideal.	.80
2. My baby's birth did not go the way I wanted it to go.*	.76
3. The conditions of my childbirth experience were excellent.	.81
4. If I could do it over, I would change some things about my childbirth experience.*	.75
5. I am satisfied with the experience of my baby's birth.	.77
6. I got what I wanted out of my childbirth experience.	.77
7. If I could do it over, I would change almost nothing about my childbirth experience.	.89

* = Indicates reverse scored item.

loadings ranging from .75 to .89. In contrast with the pilot study, the single-factor SWCh model fit the data well (CFI = .95; TLI = .93; SRMR = .034; RMSEA = .087; 90% CI = .049-.125).

Internal Consistency. Reliability analysis indicated that the 7-item scale has a Cronbach's alpha of .92 and that alpha falls below .91 if items 3 or 7 are deleted. This indicates a scale with extremely high internal consistency. Although alpha does not fall below .91 with the deletion of any one of the five other items, it is not likely necessary to reduce the number of items on the current scale.

Concurrent and Discriminant Validity

Perceived Control in Childbirth Scale. Several OLS regression analyses were conducted in order to assess correlations between the PCCh and each of the criterion variables, including childbirth self-efficacy, external control, postpartum stress symptoms, satisfaction with childbirth, and social desirability. Parity and the number of weeks since delivery were included as covariates in all regression models. Recruitment method (i.e., online vs. clinic/support group) was entered as a covariate in all regression models except those in which the criterion variables were "external control" and "social desirability bias" because these constructs were only assessed in the clinic/support group participants.

Standardized beta coefficients for the PCCh and criterion variables are presented in Table 19. Consistent with hypotheses, perceived control was significantly correlated with childbirth self-efficacy. Although the relationship is in the expected (positive) direction, the correlation indicates minimal overlap between perceived control over the childbirth environment and efficacy for coping during labor. As predicted, the PCCh was highly correlated with the "external control" subscale of the SCIB, suggesting that these two

instruments likely capture similar constructs, with 64% overlapping variance. The PCCh was also significantly moderately correlated with the SWCh, indicating that perceived control is likely an important component of global satisfaction with birth. The hypothesis that the PCCh would be negatively correlated with

Table 19

Concurrent and Discriminant Validity of the Perceived Control in Childbirth Scale

Construct	*n*	Standardized Beta	*t* - value
Childbirth Self-Efficacy (CBSEI)	107	.38	4.54**
External Control (SCIB) [a]	125	.80	14.58**
Satisfaction with Childbirth (SWCh)	186	.63	11.24**
Postpartum Posttraumatic Stress Symptoms (PSS)	173	-.40	-2.72**
Social Desirability (MCSDS) [a]	60	.04	.31

Note. CBSEI = Childbirth Self-Efficacy Inventory; SCIB = Support and Control in Birth; SWCh = Satisfaction with Childbirth Scale; PSS = Postpartum Stress Scale; MCSD = Marlowe-Crowne Social Desirability Scale. Regression models included parity, recruitment method, and weeks since delivery as covariates.
[a]Recruitment method was invariable in these equations because the instrument was only completed by the clinic/support group participants.
** $p < .01$.

postpartum posttraumatic stress symptoms was also supported, although the overlapping variance between perceived control and symptom severity was low (16%). For a test of discriminant validity, the relationship between perceived control and social desirability bias was examined in a subset of the sample ($n = 60$). As hypothesized, scores on the PCCh and

the 10-item version of the MCSDS were virtually uncorrelated. These findings provide support for the concurrent and discriminant validity of the PCCh.

Satisfaction with Childbirth Scale. Regression analyses were also conducted to assess correlations between the SWCh and criterion variables, including positive affect, negative affect, external control, childbirth self-efficacy, postpartum stress symptoms, and social desirability bias. Once again, parity and the number of weeks since delivery were included as covariates in all regression models and recruitment method was entered as a covariate in all regression models except those in which the criterion variables were "external control" and "social desirability bias."

Standardized beta coefficients for the SWCh and criterion variables are presented in Table 20. Consistent with predictions, satisfaction with childbirth was moderately inversely correlated with negative affect and moderately positively correlated with positive affect. In contrast with the pilot study, the correlation between satisfaction and positive affect was much lower in the current study (r = .53) than in the pilot sample (r = .80), suggesting that the new SWCh captures a construct that is somewhat independent of an affective response to the birth experience. The SWCh was expected to show a small to moderate positive correlation with childbirth self-efficacy and external control, which analyses supported. The hypothesis that satisfaction would be moderately negatively correlated with postpartum posttraumatic stress symptoms was also supported. This finding suggests that dissatisfaction with childbirth may increase the risk of significant psychiatric symptoms during the postpartum period. Finally, satisfaction with childbirth was expected to be unrelated to social desirability. Results supported this prediction, as SWCh scores were not significantly

correlated with MCSDS scores. In sum, results support the concurrent and discriminant validity of the SWCh.

Exploratory Analyses

An exploratory analysis was conducted in order to examine the relationship between certain aspects of the childbirth environment and perceptions of control. Specifically, women who reported choosing a midwife as the medical provider to attend the birth, professional labor support (i.e., from a doula), or who chose to deliver outside of a hospital (i.e., home or

Table 20

Concurrent and Discriminant Validity of the Satisfaction with Childbirth Scale

Construct	*n*	Standardized Beta	*t* - value
Positive Affect (PANAS)	112	.53	6.34**
Negative Affect (PANAS)	112	-.51	-5.89**
External Control (SCIB)[a]	125	.45	5.38**
Childbirth Self-Efficacy (CBSEI)	107	.47	5.42**
Postpartum Posttraumatic Stress Symptoms (PSS)	173	-.48	-3.23**
Social Desirability (MCSDS)[a]	60	.14	1.03

Note. PANAS = Positive and Negative Affect Scales; CBSEI = Childbirth Self-Efficacy Inventory; SCIB = Support and Control in Birth; PSS = Postpartum Stress Scale; MCSDS = Marlowe-Crowne Social Desirability Scale. Regression models included parity, recruitment method, and weeks since delivery as covariates.

[a]Recruitment method was invariable in these equations because the instrument was only completed by the clinic/support group participants.

** $p < .01$.

birth center) were expected to report higher levels of perceived control over the childbirth environment. Type of medical provider, location of delivery, and use of professional labor support were entered in separate steps into an OLS regression model predicting perceived control of the childbirth environment. Recruitment method, parity, and the number of weeks since delivery were entered as covariates. For the purposes of this analysis, the three respondents who reported that they had an unplanned home delivery or that they delivered en route to a medical facility were excluded because it was assumed that the birth environment was not reflective of their actual preferences.

As shown in Table 21, neither medical provider, delivery location, nor labor support were significantly uniquely related to perceived control. These findings may be partly attributable to the relatively small number of women who made perinatal health care choices outside the norm. Perceived control was also unrelated to the amount of time that had passed since the birth. However, women who were recruited from the clinic/support groups and women who were multiparous reported significantly higher perceived control during childbirth. Overall, the model explained relatively little variance in perceived control responses (13%). Correlations among the three predictor variables and perceived control are presented in Table 22. As shown, perceived control was not correlated with medical provider, delivery location, and use of labor support.

A second regression analysis was used to examine obstetric correlates of satisfaction, including obstetric complications, duration of labor, pain severity, pain management, and method of delivery. Recruitment method, parity, number of weeks since delivery, and postpartum stress symptoms were entered as covariates, followed by each of the obstetric variables, in separate steps. As shown in Table 23, obstetric complications and the severity of

Table 21

Model Predicting Perceived Control in Childbirth

Variable	B	95% CI		R^2 Change
Constant	4.38	[3.82, 4.94]		
Weeks Since Delivery	-.01	[-.05, .03]		.03
Recruitment Method: (Online vs. Clinic Setting)	.51*	[.10, .92]		.03
Parity: (Primiparous vs. Multiparous)	.39*	[.10, .68]		.04
Provider Type: (Physician vs. Non-physician)	.41	[-.17, .98]		.02
Delivery Location: (Hospital vs. Non-hospital)	.44	[-.20, 1.08]		.01
Labor Support: (Doula vs. No Doula)	.06	[-.51, .63]		.00
R^2			.13	
F			4.27**	

Note. $N = 178$. CI = Confidence Interval.
* $p < .05$. ** $p \leq .01$.

Table 22

Correlations Among Childbirth Setting, Labor Attendants, and Perceived Control of the Childbirth Environment

	Perceived Control	Non-Physician Provider	Home/Birth Center Delivery	Professional Labor Support (i.e., doula)
Perceived Control	1.00	.09	.11	.05
Non-Physician Provider		1.00	.33**	.10
Home/Birth Center Delivery			1.00	.16*
Professional Labor Support (i.e., doula)				1.00

**$p < .01$, one-tailed. * $p < .05$, one-tailed.

Table 23

Obstetric Correlates of Satisfaction with Childbirth

Variable	B	95% CI		R^2 Change
Constant	5.57	[3.92, 7.23]		
Recruitment Method:				
(Online vs. Clinic Setting)	-1.01	[-1.89, -.12]		
Parity:				
(Primiparous vs. Multiparous)	-.07	[-.47, .33]		
Weeks Since Delivery	.01	[-.04, .06]		.00
Postpartum Stress Symptoms	-1.13**	[-1.78, -.47]		.08
Labor/Delivery Complications:				
(None vs. Any Complications)	-.02	[-.45, .41]		.02
Duration of Labor (Hours)	-.01	[-.04, .02]		.01
Pain Severity	-.07	[-.18, .04]		.02
Pain Management	.25**	[.17, .34]		.12
Delivery Method:				
(Vaginal vs. Unplanned Cesarean)	-1.62**	[-2.20, -1.04]		.12
R^2			.41	
F			12.23**	

Note. N = 152. CI = Confidence Interval.
* $p < .05$. ** $p \leq .01$.

labor pain were not significantly related to satisfaction; however the perception that pain was well-managed was associated with higher childbirth satisfaction, explaining 12% of the variance. Having an unplanned cesarean section was also significantly related to lower satisfaction with childbirth, also explaining 12% of the variance.

In a final step, PCCh scores were added to the regression equation, in order to preliminarily examine a biopsychosocial model of childbirth satisfaction. As shown in Table 24, the strongest predictor of childbirth satisfaction was perceived control of the childbirth environment, explaining 15% of the variance within the entire model. Pain management and having an unplanned cesarean section were also significantly related to satisfaction, explaining 12% of the variance, respectively. In the final model, duration of labor appeared to be an overall weak correlate of satisfaction (accounting for 1% of the variance). Not surprisingly, experiencing postpartum stress symptoms was also associated with lower satisfaction, and accounted for 8% of the variance in the model. None of the other covariates, including recruitment method, parity, and number of weeks since delivery were related to childbirth satisfaction scores. These findings lend preliminary support for a model in which psychological variables explain more variance in overall childbirth satisfaction than obstetric characteristics of labor and delivery.

Correlations among the six biopsychosocial variables and childbirth satisfaction are presented in Table 25. Significant small to moderate correlations were observed between obstetric complications, duration of labor, pain management, having an unplanned cesarean section, and satisfaction, while perceived control was a stronger correlate. Perceived control was also positively correlated with pain management and negatively correlated with having an unplanned cesarean section, though these relationships were modest.

Table 24

Biopsychosocial Correlates of Satisfaction with Childbirth

Variable	B	95% CI		R^2 Change
Constant	2.47	[.80, 4.14]		
Recruitment Method:				
(Online vs. Clinic Setting)	-.56	[-1.33, .21]		
Parity:				
(Primiparous vs. Multiparous)	-.23	[-.56, .11]		
Weeks Since Delivery	.02	[-.02, .07]		.00
Postpartum Stress Symptoms	-.62*	[-1.20, -.04]		.08
Labor/Delivery Complications:				
(None vs. Any Complications)	.03	[-.34, .40]		.02
Duration of Labor (Hours)	-.03*	[-.05, .00]		.01
Pain Severity	-.08	[-.17, .02]		.02
Pain Management	.13**	[.05, .22]		.12
Delivery Method:				
(Vaginal vs. Unplanned Cesarean)	-1.02**	[-1.55, -.50]		.12
Perceived Control in Childbirth	.71**	[.51, .90]		.15
R^2			.56	
F			18.64**	

Note. N = 152. CI = Confidence Interval.
* $p < .05$. ** $p \leq .01$.

Table 25

Correlations Among Biopsychosocial Factors and Satisfaction with Childbirth

	Childbirth Satisfaction	Obstetric Complications	Duration of Labor	Pain Severity	Pain Management	Unplanned Cesarean Delivery	Perceived Control
Childbirth Satisfaction	1.00	-.29**	-.19**	-.12	.37**	-.31**	.65**
Obstetric Complications		1.00	.25**	.04	-.01	.40**	-.24**
Duration of Labor			1.00	.14*	-.04	.24**	-.02
Pain Severity				1.00	-.26**	-.12	-.03
Pain Management					1.00	.04	.36**
Unplanned Cesarean Delivery						1.00	-.31**
Perceived Control							1.00

**$p < .01$, one-tailed. * $p < .05$, one-tailed.

Discussion

The purpose of the current study was to begin development of measures to assess women's perceptions of control over the childbirth environment and overall satisfaction with the birth experience. The resulting instruments, the PCCh and the SWCh, are both unidimensional scales with extremely high internal consistency. Analyses also supported the concurrent validity of these instruments. The PCCh was significantly correlated with childbirth self-efficacy, "external control," and satisfaction with childbirth. The SWCh was significantly correlated with positive affect, negative affect, childbirth self-efficacy, and "external control." Both instruments were uncorrelated with social desirability bias, providing evidence of discriminant validity. Finally, the PCCh and SWCh were negatively associated with symptoms of posttraumatic stress, demonstrating the clinical relevance of these instruments.

The birth of a child is often described as one of the most significant and memorable experiences in a woman's life. For many mothers, the birth experience has lasting effects despite its relative transience. Positive experiences are an important beginning of the bonding process between mothers and infants, enhancing the new family's adjustment during the postpartum period (DiMatteo, Kahn, & Berry, 1993; Quine, Rutter, & Gowen, 1993). On the other hand, extremely negative birth experiences can be viewed as traumatic and, in some instances, place women at greater risk of developing clinically significant symptoms of postpartum PTSD and depression (Ayers et al., 2008). A biopsychosocial model of childbirth satisfaction is therefore crucial to improving maternity care.

The measures developed here represent a departure from existing measures in that development was guided by a theoretical framework that emphasizes perceptions of control

and satisfaction within the broader context of person-environment fit (i.e., a PE model). The model proposes that the relationship between perceived control of the birth environment and overall satisfaction with the birth experience depends upon a woman's a-priori preferences for control. Instruments to assess these constructs were developed specifically to examine the validity and clinical relevance of a PE fit model of childbirth satisfaction.

Satisfaction with Childbirth

Driving Theoretical Considerations. Consistent with SWB theory, the current study defined childbirth satisfaction as the cognitive evaluation of whether the birth environment was an appropriate fit with an individual's preferences for the experience. Because no theoretically-based, psychometrically tested measure currently exists to assess global satisfaction with birth, the SWLS was used to guide development of a new measure. Childbirth satisfaction is also conceptualized as a global construct, and thus, items on the SWCh are meant to capture mothers' views of their overall experience, without emphasizing any specific component of the birth environment. The conceptual and operational definitions of childbirth satisfaction are therefore both grounded in PE fit theory and provide researchers with the framework for examining biopsychosocial predictors of childbirth satisfaction.

Empirical Findings. Importantly, the results of this study provide evidence that distinguishes satisfaction with the birth experience, defined as a cognitive evaluation, from affective responses to birth. Childbirth satisfaction was only moderately correlated with both positive and negative affect, which is congruent with findings from earlier studies (Hamilton et al., 2007; Larsen et al., 1985). It is worth noting, however, that the current study did not replicate findings from the pilot study, in which satisfaction and positive affect were much

more highly correlated (r = .80). The lower correlation in the current study may have emerged as a result of modifications to the SWCh item set.

Perceived Control of the Childbirth Environment

Guiding Theoretical Considerations. Perceived control reflects a mother's belief that she was able to actively influence the childbirth situation in a way that enhances her sense of agency and reduces stress. This translates to taking part in decisions regarding medical procedures during the labor and delivery process, as well as influencing the physical environment in which she gives birth. Given the lack of theoretically-driven assessments of perceived control, the PCON was used to construct a measure of women's perceived ability to regulate and influence the birth environment. Qualitative research was also used to develop items that reflect a range of content specific to the childbirth context.

Empirical Findings. It was expected that higher perceived control would be characteristic of women who chose midwives (versus obstetricians), an out-or-hospital birth, or professional labor support, because such choices usually reflect an approach to childbirth in which patient control is emphasized, usually above medical intervention. However, the data did not support this prediction. This finding makes sense given that such a small number of participants in the sample chose birth locations/providers outside the norm. It should also be noted that childbirth choices associated with fewer interventions are not necessarily synonymous with higher perceived control. Women who are more aligned with the medical model of childbirth can also achieve a high level of personal control through choosing interventions to manage the onset, progress, and pain of labor. Regardless of approach to managing labor and birth, it is perhaps more important that the PCCh can be used to detect high or low levels of perceived personal control across multiple types of childbirth settings.

Interestingly, the data also showed that multiparous mothers reported greater perceived control over their birth environments than primiparous mothers. Although this study made no *a priori* predictions about parity, this outcome makes sense because previous experience with childbirth should, on average, reduce fear of the unknown and increase the likelihood of either replicating a previous positive childbirth experience or changing how the subsequent experience unfolded.

Limitations and Qualifications

It is important to recognize that the PCCh and SWCh are comprised of items derived from existing measures with demonstrated reliability and validity (the PCON and SWLS) as well as qualitative descriptions of patient involvement in the birth process (Drew et al., 1989; Larson et al., 1985; Wallston et al., 1987). Despite alterations made to the original items and qualitative data, the SWCh and PCCh should not be regarded as totally original instruments. Satisfaction and perceived control are not new constructs; rather, items were tailored to the unique characteristics of labor and birth. Thus, the PCCh and the SWCh are *different* scales from which they were derived, but they do not represent *original* scales or constructs. Researchers may consider referencing the PCON, Drew et al.'s (1989) qualitative work, and the SWLS when using the PCCh and SWCh.

Study Limitations. This study was the first step in the development of a measure of perceived control in childbirth and the second step in the development of a measure of childbirth satisfaction. As such, there are a number of limitations. Perhaps the most serious limitation pertains to the use of multiple sampling methods.

Development of instruments measuring perceived control and satisfaction required a diverse sample with a range of perinatal experiences. Given that previous findings indicated

that participants recruited from Babycenter.com were likely to report higher desire for control and to seek non-traditional caregivers, such as midwives and doulas, than clinic participants (Stevens et al., 2009), the current study utilized multiple recruitment sources in order to achieve the most heterogeneous sample. Despite the advantage that recruiting from multiple sources allowed for greater variability in responses, other group differences introduce possible confounds.

First, it cannot be assumed that women who completed the survey during leisure time (possibly in private) would have responded the same way if they had completed it at their physician's office. A number of clinic/support group participants and all of the online participants completed at least some of the survey outside of a medical facility. (Some participants started to complete the survey at the clinic but took it home to finish it). This is important because women may think and feel differently about their birth experiences (especially when evaluating medical care) when sitting at home than when sitting in a doctor's office. Importantly, results of the study indicated that responses on the PCCh and SWCh were uncorrelated with participants' tendency to respond in a socially desirable manner, providing some evidence that women may not have necessarily felt "pressured" to respond in a particular way.

It is also important to note that all of the clinic/support group participants experienced face-to-face contact with the study investigator. The investigator was introduced online via written personal greeting; however, there is no way to replicate the face-to-face interaction that took place at the clinics and support groups. In addition, there were differences between the two recruitment methods in method and type of compensation for participation. All participants were eligible for compensation either at the time they completed the survey, or

via postal mail or email. However, some participants knew they would receive a gift card and others knew they would receive their choice of a book or CD. Furthermore, only 20 online participants chose to contact the study investigator to receive the e-gift card and, because surveys were anonymous, it was not possible to determine which responses belonged to those who contacted the study investigator. Therefore, there may be differences between groups receiving different types of compensation as well as between groups who chose to contact the investigator for their gift and those who did not.

There may also be differences created by mode of responding: web-based versus paper-pencil. Given the proliferation of web-based research in recent years, investigators have examined several possible threats to validity of online responses. One group of researchers has identified evidence that online responses are generally consistent and no less accurate than responses obtained via face-to-face contact (Gosling et al., 2004). Furthermore, it was determined that the benefit of using both types of data collection in terms of timeliness and in terms of obtaining the highest possible variability of responses outweighed these concerns.

Another important factor to consider when interpreting the results is the wide range in the number of weeks from delivery represented in the current sample. Some participants completed the survey as early as one week postpartum and others up to four months postpartum. The benefit of this range of timing is that it facilitated reaching an adequate sample size for factor analysis, and also allowed an examination of whether perceptions of childbirth differed across respondents who completed the surveys at various time points. The amount of time from delivery was not linearly related to responses on satisfaction and perceived control items (all p values > .05); though it should be noted that a curvilinear

relationship between time and participants' responses were not evaluated. Furthermore, PTSD symptoms *were* related to perceived control and satisfaction responses, and in this study, the presence of PTSD symptoms varied according to time from delivery. Therefore, maternal mental health represents a possible confounding variable that may have affected retrospective recall of childbirth experiences, depending upon when participants provided responses. Although it can be hypothesized that lack of personal control and overall dissatisfaction with birth led to the development of PTSD symptoms, the cross-sectional, correlational design of the study precludes drawing such a conclusion. Therefore, it will be important for future research to establish temporal precedence of women's childbirth evaluations by conducting longitudinal studies that assess perceptions of birth and mental health symptoms from immediately following childbirth through the postpartum year.

Finally, the current study was limited by information that was not included on the Birth Outcome Questionnaire. For instance, although participants were asked to report types of pain medication and obstetric interventions, they were not asked to report how involved they were in selecting the interventions. The questionnaire also did not request specific information regarding obstetric complications, including onset, duration, and how complications were managed. Very limited information was obtained about neonatal outcome, and most women either did not remember or did not report their baby's Apgar scores. Expanding the birth outcome information that is collected will be important to the next phase of the study.

Recommendations for Further Development of the PCCh

Future scale development studies should include questions that could further support the validity of the PCCh. For example, a more thorough assessment of procedures,

interventions, and complications during the labor and delivery process will shed more light on the relationship between obstetric variables and perceived control. Information regarding women's choices to receive specific obstetric interventions will be examined in relation to perceived control. For example, patients who report that they were actively involved in the decision to induce or augment labor with pitocin will be expected to report higher perceived control than women who believe that they felt pressured or unable to influence the decision. The next round of data collection should include questions designed to identify women who express high perceived control by selecting obstetric procedures such as induction/augmentation, pain medications, or cesarean section.

More detailed information regarding the onset and outcome of childbirth complications will also be examined. It would be expected that complications that develop more gradually (e.g., failure to progress in labor) provide greater opportunity for patient involvement in medical decisions than complications in which the threat to maternal/infant well-being is more imminent (e.g., umbilical cord prolapse). It may be advantageous to collect certain information via medical chart review, as not all women are likely to identify or recall the types of interventions they received, or the exact complication that occurred during childbirth.

The next step in scale development will also focus on refining the existing items. The current study identified 17 items with high factor loadings (> .50) that assess a woman's perception of control over her childbirth environment. An important next step in the development of this scale is determining whether all 17 items are necessary to assess perceived control. Reliability analysis indicated that the internal consistency of the PCCh is unchanged when any single item was removed. Selection of the final items will be made

based on several criteria including, 1) factor loadings, 2) coefficient alpha, 3) retention of positively and negatively worded items, and 4) item reading level. The current study examined preliminary data for the 17-item scale: future analyses should examine whether the scale can be reduced to 10 or fewer items without compromising its psychometric qualities.

The items should be administered again to a large sample of heterogeneous postpartum women. Confirmatory factor analysis (CFA) should be conducted in order to replicate the single-factor structure in an entirely new sample. In future studies, multiple-group CFA could also be conducted in order to determine factor structure invariance according to parity, ethnicity, length of time since delivery, method of delivery, and maternal/neonatal outcome. Other factors such as maternal mental health symptoms could also be examined as possible explanatory variables for any differences in perceptions of control during birth across time.

Finally, future studies may also examine the importance of items that loaded on the second factor. The second factor, identified as "perceived control over one's activity during labor/delivery," was initially conceptualized as one component of the perceived control construct. These items pertained to the patient's perceived freedom to select comfort strategies for labor and the freedom to move around during labor. However, this factor emerged as a separate, moderately correlated construct. Given that a number of items also cross-loaded on the first and second factors, future research should determine if these items could comprise a useful subscale.

Recommendations for Further Development of SWCh

The next step in scale development should focus on further supporting the validity of the SWCh. A more thorough assessment of obstetric complications and birth outcome will

facilitate a better understanding of the relationship between these variables and overall satisfaction. For example, birth complications requiring intensive interventions (e.g., an assisted vaginal delivery) are likely to contribute to a more negative experience than complications requiring less intensive intervention. In addition, very little information was gathered in the current study about infant outcome, which is likely an important predictor of childbirth satisfaction. Most women in the current study either did not remember or did not report Apgar scores, and most reported healthy outcomes overall (i.e., only 5% had a baby admitted to the NICU). In future studies, sampling a more high-risk group would allow researchers to thoroughly examine infant outcome in relation to childbirth satisfaction. Furthermore, examining a high-risk population is important for understanding whether perceived control is related to satisfaction or dissatisfaction in situations with poor neonatal outcome. Medical chart review could be useful in future studies in order to obtain more detailed and accurate obstetric/neonatal outcome data.

In addition to exploring maternal satisfaction in medically high-risk populations, future studies should also examine use of the SWCh in women with scheduled cesarean deliveries. These women were excluded from the current study because the study focused on experiences with the labor process. However, it is not uncommon for women to give birth via scheduled cesarean either because of a previous cesarean (if vaginal delivery is not an option), multiple gestation pregnancy, or, less commonly, patient preference. Planned cesarean delivery does not rely on the physiological process of labor to determine when the baby will be born and, as a result, the process of birth is much more similar to other forms of medical/surgical treatment. Nevertheless, this process still culminates with the birth of a child

and is just as meaningful for new families. It is important for future studies to examine maternal satisfaction with birth across all methods of delivery.

The SWCh should be administered again to a large sample of heterogeneous postpartum women, including women with high-risk deliveries and women with planned cesarean deliveries. CFA should be used to replicate the single-factor structure. In future studies, multiple-group CFA could be conducted in order to determine factor structure invariance according to parity, ethnicity, length of time since delivery, method of delivery, and maternal/neonatal outcome. Other factors such as maternal mental health symptoms should also be examined as possible explanatory variables for any differences in perceptions of birth across time.

Conclusions

Clinical Utility of the PCCh and SWCh. Not surprisingly, the distribution of scores in this sample indicates that most women report that they are generally satisfied with their birth experiences and perceived at least some control over their birth environments. However, some women had stronger responses than others. In some cases, these responses were extremely negative, and even corresponded with perceptions of a traumatic birth. Understanding the differences between positive and negative experiences is important for perinatal health care practice as well as understanding how control is related to childbirth satisfaction.

For example, an important finding in the current study was that perceived control of the birth environment emerged as the strongest predictor of global childbirth satisfaction, whereas factors such as pain management and unplanned cesarean delivery explained less variance. This finding has major implications for postpartum well-being, given that the rate

of cesarean deliveries performed in the United States (32% in 2007) suggests that an increasing number of women undergo *unplanned* major surgery in order to give birth each year (National Center for Health Statistics [NCHS], 2010). Although the current study identified a much lower rate (14%) than the national average, in part because women with scheduled cesarean sections were not included, results indicate that perceived control may be an important "protective factor" against dissatisfaction due to unplanned surgical delivery. In other words, the negative impact of an unplanned cesarean delivery may be circumvented if the mother perceives that she was actively involved in the medical decision-making process. The findings provide support for the benefit of enhancing women's control over the birth environment.

Another important finding in the current study was that both the SWCh and PCCh were moderately correlated with PTSD symptoms. Certainly, not all women who are extremely unhappy with their childbirth experiences or who felt that they had no influence over their environment will go on to develop a psychiatric disorder. Several factors influence risk of developing a postpartum mood or anxiety disorder (psychiatric history, for instance) that were not adequately assessed in the current study. However, the current study was consistent with previous research in terms of prevalence of postpartum PTSD symptoms and the role that the childbirth experience has in affecting the onset of these symptoms (Ayers et al., 2008). Clearly, the relationships among extreme dissatisfaction with childbirth, lack of perceived control, and postpartum psychological distress merit further attention.

In clinical settings, a score on the PCCh or the SWCh could be used to help physicians, nurses, midwives, and social workers identify women who may be at greater risk of experiencing PTSD symptoms as a result of childbirth. Similar to screenings for

postpartum depression, brief assessments of the childbirth experience could provide extremely important information about patients, possibly even before symptoms begin. A measure that takes patients fewer than five minutes to complete may communicate what otherwise requires a lengthy conversation. Ideally, a patient's responses would be used to identify mothers who may be more vulnerable to psychological distress, and to offer the most appropriate intervention to treat or prevent symptoms.

Childbirth Satisfaction: The Broader Context. Perceived control and maternal satisfaction with childbirth may be the most useful in the broader context of a PE model designed to examine the *fit* between desire for control and perceived control as a predictor of childbirth satisfaction. Future studies should explore a *congruence* model of control as outlined in Figure 1. This research will fill important gaps in the literature.

For instance, extant literature indicates that perceived control is related to childbirth satisfaction; however, no study to date has examined whether the fit between women's desire for control and perceived control is a better predictor of global evaluations of the birth experience than either variable alone. Furthermore, understanding how patients view their role in the management of the birth process can improve patient-provider communication before the birth, as well as guide the development of interventions to help each woman achieve her preferred level of involvement in her medical care. The control congruence model should be a focus of maternal health care research regardless of medical risk during pregnancy or planned method of delivery. It will be important, however, for future studies to examine a congruence model using valid measures for women who plan to give birth via scheduled cesarean section. Existing measures of preferences for control and perceived

control over health care (i.e., DCON and PCON) may be suitable for this population given the level of medical/surgical involvement during the entire birth process.

As shown in Figure 1, fit between desire for control and perceived control represents only one pathway to childbirth satisfaction. A comprehensive understanding of childbirth satisfaction would require that this PE model be examined in the context of other important variables such as social support, expectations regarding pain management, and the quality of the patient-provider relationship. It will be important to examine relationships among these factors in relation to obstetric variables such as duration of labor, pain severity, complications, interventions, delivery method, and maternal/neonatal outcome. The current study provides some evidence that psychosocial factors may be more impacting on childbirth satisfaction than obstetric variables, given a healthy outcome, but a more complete picture of obstetric variables is needed. A final comprehensive biopsychosocial model of maternal satisfaction with childbirth will have great utility in guiding the development of interventions to improve women's childbirth experiences and overall maternal health.

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Appendix A

Pregnancy Information Questionnaire

Below you will find several items. Please answer them honestly and to the best of your ability.

1. What is Your Age?_____

2. Are You:

_____ Single/Never Married

_____ Married/Living with Partner

_____ Separated/Divorced

_____ Widowed

3. Do you consider yourself mostly (Check all that apply):

_____ Caucasian

_____ Hispanic

_____ African American

_____ Asian/Asian American or Pacific Islander

_____ Native American/Alaska Native/American Indian

_____ Other: _____

4. What is the highest level of education that you have completed?

_____Some High School

_____ High School Diploma or GED

_____ Trade/Vocational School

_____ Some College

_____ 2 or 4-year College Degree

_____ Some Graduate School

_____ Graduate/Professional Degree

5. Mothers who have lived in the United States for all or most of their lives may have different expectations about childbirth than those who have not. For that reason, we are interested in length of time you have lived in the U.S. Please indicate how many years:

_____>20 years _____11-20 years _____6-10 years _____1-5 years _____<1 year

6. Counting your most recent pregnancy, how many times have you been pregnant?___

7. Of those pregnancies,

(a) How many ended with the birth of a healthy, full-term infant (i.e. 40 weeks)?____

(b) How many ended with the birth of a premature infant (i.e. < 37 weeks)?_____

(c) How many ended with the birth of an infant who was sent to the NICU?_____

(d) How many ended in miscarriage or stillbirth?_____

8. How many children do you

have?_____

9. Have you ever attended childbirth preparation classes?

_____ Yes

_____ No

10. What kind of preparation classes have you attended?

_____ General Childbirth Preparation (i.e. through hospital or birth center)

_____ Bradley Method

_____Hypnobirthing

_____ Lamaze

_____ Other: _____

_____I have never attended childbirth classes.

11. Who did you see regularly for prenatal care?

_____ OB Doctor

_____ Midwife

_____ Both OB and Midwife

_____ Family Practice Doctor

12. In general, how would you describe your attitude about your most recent pregnancy?

____ Very Negative ____ Negative ____ Neutral ____ Positive ____Very Positive

13. For your most recent pregnancy, did you plan to become pregnant?

_____Yes _____No

14. Which of the statements below best describes you?

_____ I have never smoked cigarettes.

_____ I currently smoke about _____cigarettes per day.

____ I used to smoke cigarettes, but quit before or during my most recent pregnancy.

15. About how much physical exercise do you get on a regular basis?

_____ At least 20-30 minutes 5 or more days per week.

_____ At least 20-30 minutes 3-4 days per week.

_____ At least 20-30 minutes 1-2 days per week.

_____None at all.

16. Check any pregnancy-induced medical conditions relating only to your most recent pregnancy:

_____ Hypertension/Preeclampsia _____ Other:_____

_____ Gestational Diabetes _____

_____ Anemia

_____Early dilation of cervix/short cervix/cerclage placement

_____ None of these

17. Check any chronic conditions that you received a medical diagnosis of BEFORE your most recent pregnancy:

_____ High blood pressure/Hypertension _____ Physical Disability (Specify

_____ Type I or Type II Diabetes Type):_____

_____Asthma/Pulmonary disease _____Multiple Sclerosis (MS)

_____ Anemia

_____ Blood disorder

_____ Hypothyroidism

_____ Epilepsy/Seizure Disorder

_____ Heart Condition/Cardiac disease

_____ Lupus

_____ Birth defect

_____Depression/Taking antidepressants **_____None of these**

_____Depression/Not taking antidepressants

18. Check any medical complications experienced with your most recent pregnancy only?

_____ Intrauterine growth restriction/ baby not growing well

_____ Placental abruption

_____ High cord pressure

_____ Subchorionic bleed/hemorrhage

_____ Preterm labor (Contractions that dilate cervix)

_____ Other:_____

_____ Diagnosed fetal birth defect

_____Amniotic leak

_____ None of these

_____ Placenta previa

Appendix B

Birth Outcome Questionnaire

Please answer the following items:

1. Which of the following describes your most recent pregnancy?

_____ Full-term pregnancy (37-40 weeks)

_____ Ended prematurely (< 37 weeks)

_____ Went past my due date (> 40 weeks)

2. How long ago was your baby born approximately in weeks?_____

3. In your most recent childbirth experience, was your birth attended by (Check all that apply):

_____ My husband/partner

_____ Friends or other relatives

_____ Doula or other trained labor support person

_____ No one/Medical staff only

4. Where was your baby born?

_____ Hospital

_____ Birth Center (including birth centers within a hospital)

_____Home

_____Other: _____

5. About how long did labor last from the time your contractions were about 5 minutes apart? _____hours

6. What type of medical care provider delivered your baby?

_____ OB Doctor

_____ Midwife

_____ Family Practice Doctor

_____Other:_____

7. Please check any interventions that you had during labor/childbirth:

_____ IV fluids

_____Prostaglandin/Pitocin (to induce labor)

_____ Artificial Rupture of Membranes (AROM)

_____ Pitocin (to speed up labor)

_____ External Electronic Fetal Monitoring

_____ Was it continuous (all the time)?

_____ Was it intermittent (only some of the time)?

_____ Internal fetal monitoring (electrode on baby's head)

_____ Internal monitor to keep track of contractions

_____ Supplemental Oxygen

_____ Other:_____

_____Don't Know

_____None of these

8. Did you give birth to twins or multiples?

_____ Yes

_____No

9. Was your baby presenting in a breech or transverse position at the time of birth?

_____ Yes

_____No

10. Use the following scales to describe your experience of pain during labor.

On a 1-10 scale how would you rate the **worst** pain you experienced during labor?

1 2 3 4 5 6 7 8 9 10
No pain *Worst pain imaginable*

On a 1-10 scale, what was your desire for pain medications prior to the birth?

1 2 3 4 5 6 7 8 9 10
No meds *As much as possible*

On a 1-10 scale how well do you think your pain was managed during labor either with medications or other comfort techniques?

1 2 3 4 5 6 7 8 9 10
Not well at all *Pain very well managed*

On a 1-10 scale, how competent did you feel in coping with pain of your labor and delivery?

1 2 3 4 5 6 7 8 9 10
Not at all *Completely*

11. What type of pain medications did you receive?

_____ IV pain medications (such as fentanyl, stadol, nubain)

_____Epidural when dilated less than 5cm

_____Epidural when dilated greater than 5cm

_____Epidural – don't remember when

_____ Other:_____

_____No pain medications at all

_____**Don't know**

12. What was the method of delivery?

_____ Spontaneous Vaginal Delivery

_____ Assisted Vaginal Delivery with Forceps or Vacuum Extractor

_____ Planned Cesarean

Reason:_____

_____ Unexpected Cesarean

Reason:_____

_____Vaginal Birth after Cesarean (VBAC) with Outcome of Vaginal Delivery

_____Vaginal Birth after Cesarean (VBAC) with Outcome of Repeat Cesarean

13. Were there any complications with your labor or delivery? (Check all that Apply):

Mother:

_____Cervix stopped dilating/labor stopped progressing

_____Umbilical cord came out before baby

_____Fever/infection

_____Blood pressure was too high or too low during labor

_____Unable to push

_____Placenta started to separate before birth

_____Other:_____

Baby:

_____Baby's heart rate dropped/baby was distressed during labor or delivery

_____Baby got stuck in birth canal/baby's head would not fit in birth canal

_____Baby had a bowel movement in the womb (meconium)

_____Other:_____

14. What was the infant's outcome? (Answer all that apply)

Birth Weight:_____

_____1-minute Apgars

_____5- minute Apgars

_____Don't remember or was not told baby's Apgar scores

_____Birth Defect

_____Intensive Care

_____Stillbirth

_____Attempted breastfeeding immediately after birth

15. Are you currently breastfeeding your baby?

_____ Yes

_____No

Appendix C

PCCh

(Perceived Control of the Childbirth Environment)

Below you will find several items describing some aspects of the childbirth experience. Please write your response to each of the items on the line preceding it. Use the scale below:

- 6 – Strongly agree
- 5 – Moderately agree
- 4 – Slightly agree
- 3 – Slightly disagree
- 2 – Moderately disagree
- 1 – Strongly disagree

_____1. I was able to participate in making decisions about how to manage my labor and birth.

_____2. When I was in labor, my medical care providers decided what procedures I would have.

_____3. My medical care providers were in control of my birth environment.

_____4. I was in control of my pain medication (deciding if and when I wanted it and how much).

_____5. My medical care providers took charge of managing my labor and birth.

_____6. I was able to choose the type of pain medication I would receive.

_____7. My medical care providers asked my opinion about each un-planned procedure before it was performed.

_____8.I was able to move around freely during labor if I wanted to.

_____9. I was able to move around as best I could even though I had certain interventions (such as IVs, fetal monitoring).

_____10. I was able to have a bath or a shower if I wanted one.

_____11. I was able to have exactly the people I wanted with me during labor and birth.

_____12. While I was in labor, I was able to decide how to be most comfortable.

_____13. I was able to take charge of managing my labor and birth.

_____14. I was able to control the labor and delivery environment.

- 6 – Strongly agree
- 5 – Moderately agree
- 4 – Slightly agree
- 3 – Slightly disagree
- 2 – Moderately disagree
- 1 – Strongly disagree

_____15. I could not control the number of people coming in and out of the labor/birth room.

_____16. I was able to hold the baby immediately after the birth if I wanted to.

_____17. I was given choices before procedures were decided upon.

_____18. I did not feel that I was in control of my birth environment.

During my labor and birth, when I was told about the procedures I felt. . . . (please continue to use above scale)

_____19. That I could not question my medical care provider's decisions.

_____20. That I did not have much influence over what procedures were done.

_____21. That I was in control of the situation.

_____22. That my medical care providers told me what I should do.

_____23. That I could get all my questions answered.

_____24. That I was able to actively influence my labor and delivery care.

_____25. That what I said or did made no difference in what occurred.

_____26. That my medical care providers decided what was best for me.

From the time I arrived at the hospital or birth center, I felt….
(For home births, use the phrase, "From the time my medical care providers arrived, I felt....)

_____27. Very much "on top" of the situation.

_____28. At a loss to know what I would be experiencing.

_____29. If I wanted to, I could change the procedures I was receiving.

- 6 – Strongly agree
- 5 – Moderately agree
- 4 – Slightly agree
- 3 – Slightly disagree
- 2 – Moderately disagree
- 1 – Strongly disagree

_____30. I knew what the purpose and effects of the procedures were.

In the following items, the phrases “routine procedures” and “routine parts” refer to both the technical aspects of your care such as IVs and fetal monitoring **and** the non-technical parts of your care such as freedom to move around in labor, freedom to eat or drink, or the ability to have whom you want in the labor and delivery room. (Use above scale).

In regards to the routine parts of my labor and delivery care…

_____31. I was given as much control over my activities during labor and birth as I would normally have at home.

_____32. I could change when and how routine procedures were done.

_____33. I was unable to have a say in what the routine procedures were while I was under the care of medical staff.

_____34. I could tell my medical care providers about my preferences for my care.

_____35. I was given choices about the routine parts of my labor and delivery care.

_____36. If I asked my medical care providers to do something differently during labor and delivery, they usually did it.

_____37. I did not know in advance what routine treatments I would have or when they would occur.

Appendix D

SWCh
(Satisfaction with Childbirth Scale)

Using the scale below, indicate your agreement with each of the following items.

- 1 – Strongly Disagree
- 2 – Disagree
- 3 – Slightly Disagree
- 4 – Neither agree nor disagree
- 5 – Slightly Agree
- 6 – Agree
- 7 – Strongly Agree

_____ 1. In most ways, my childbirth experience was close to my ideal.

_____2. My baby's birth did not go the way I wanted it to go. (New Item)

_____3. The conditions of my childbirth experience were excellent.

_____4. If I could do it over, I would change some things about my childbirth experience.

_____5. I am satisfied with the experience of my baby's birth.

_____6. I got what I wanted out of my childbirth experience.

_____7. If I could do it over, I would change almost nothing about my childbirth experience.

_____8. My childbirth environment was terrible. (New Item)