Construct Validity of the Childbirth Trauma Index for Adolescents

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ABSTRACT

The potentially traumatic nature of childbirth for adult mothers has been confirmed in research; however, adolescent childbirth trauma is unexplored. This article presents research on the construct validity of the Childbirth Trauma Index by providing a conceptual analysis of psychological childbirth trauma, factor validity of the Childbirth Trauma Index, and discussion of testing the Childbirth Trauma Index via contrasted-groups approach. Childbirth trauma can result in an acute stress reaction or actual posttraumatic stress disorder. Using subjective reports, the Impact of Event Scale, and the Childbirth Trauma Index, an appraisal of birth trauma, trauma impact, and indicators associated with childbirth trauma were revealed among 112 adolescents. Clinical implications and research recommendations are offered.

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Appraisal of the childbirth experience for adults has been studied for more than 40 years, with recognition of a potential for psychological childbirth trauma noted slightly more than a decade ago. Adolescents' appraisal of the traumatic impact of childbirth remains unexplored. What defines psychological birth trauma varies by individual, but new mothers have reported numerous childbirth-related events to be stressful, including severe toxemia, fear of epidural anesthesia, rapid birth, a degrading experience, emergency cesarean surgery, infant congenital abnormalities, infant admission to neonatal intensive care, and infant death (Beck, 2004). Lacking a sense of control, such as with decision-making responsibilities (Green & Baston, 2003) or related to bodily sensations (Kennedy & MacDonald, 2002); uncontrolled pain; a feeling of powerlessness; increased

medical interventions; feelings of anxiety or panic; feeling alone, without support, or uncared for (Soet, Brack, & Dilorio, 2003); and inadequate birth information (Beck, 2004) can potentially precipitate a negative birth appraisal or a trauma stress response.

One's appraisal of the childbirth experience has been suggested in the literature to be one of the most influential reasons for developing symptoms of trauma and posttraumatic stress disorder (PTSD; Beck, 2004). A review of eight published studies ($N = 4,514$) exploring postnatal traumatic stress responses approximated that one-third of women appraised their childbirth as traumatic (Ayers, 2004). Within the initial weeks following birth, about 10% of women experience a severe trauma stress response presenting with similar symptoms to PTSD but not fulfilling the diagnostic criteria

for PTSD (Ayers, 2004). These percentages decrease to 2.4% by 6 months. It is important to recognize that a woman can appraise her birth experience as traumatic but never display symptoms of trauma or PTSD. Equally as likely, a woman may not appraise her birth as traumatic but show trauma symptoms (Ayers, 2004). According to the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders IV* (1994), PTSD may occur following exposure to any traumatic event during which the person feels threatened by death or serious injury to self or to others and, in turn, reacts with intense fear, helplessness, or horror. Women experiencing symptoms of PTSD suffer significant disability and impairment to their personal lives.

A traumatic childbirth can be regarded as a trigger to the development of PTSD (Lyons, 1998). Researchers have investigated PTSD, or posttraumatic stress (PTS) symptoms, among adults in several countries (Allen, 1998; Ayers & Pickering, 2001; Creedy, Shochet, & Horsfall, 2000; Lyons, 1998; Menage, 1993; Reynolds, 1997 [United Kingdom]; White, Matthey, Boyd, & Barnett, 2006 [Australia]; Wijma, Söderquist, & Wijma, 1997 [Sweden]) and in the United States (Soet et al., 2003). Variation in assessment measures, however, and the absence of differentiation between an actual clinical diagnosis and a screen of symptoms result in a wide prevalence rate (Ross & McLean, 2006). With diagnostic criteria for PTSD relating to only adults (Tierney, 2000), adolescent symptoms go unrecognized.

The development of a measurement tool distinguishing indicators of psychological birth trauma among adolescents can help the nurse assess and direct care at reducing the possibility of a trauma stress response or PTSD. This article presents research establishing the construct validity of the Childbirth Trauma Index (CTI) by providing a conceptual analysis of psychological childbirth trauma, factor validity of the CTI, and a discussion of testing the CTI via a contrasted-groups approach. Implications for practice and recommendations for research are also offered.

LITERATURE REVIEW

The presence of PTSD-like symptomatology was first diagnosed in the late 1970s when two French obstetricians identified symptoms of trauma in 10 women receiving obstetrical care (Beech & Robinson, 1985). Childbirth had not been considered a traumatic event capable of producing symptoms of PTS or PTSD until changes in *DSM* criteria approximately a

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decade ago prompted researchers to begin investigations in the area (Bailham & Joseph, 2003).

Women were found to suffer varying degrees of stress and psychological trauma following childbirth. Women experiencing an acute stress reaction (within the first few hours or days of birth) appeared dazed, overactive or agitated, withdrawn, anxious, disoriented, or depressed (Church & Scanlan, 2002). Although the experience of this immediate stress reaction is generally transient in nature, it has been considered a precursor to PTS (Olde, van der Hart, Kleber, & van Son, 2006). The experience of acute symptoms that resemble symptoms of PTSD is defined as an "acute stress disorder." A trauma stress response fulfilling symptoms of an acute stress disorder can possibly develop into PTSD (Ayers, 2004). A clinical diagnosis of PTS and PTSD includes reexperiencing the event (e.g., flashbacks and nightmares); avoidance, such as avoiding reminders of the event and feeling emotionally detached; and arousal, such as an increased startle response, irritability, or anger; Ayers, 2004; Holditch-Davis, Bartlett, Blickman, & Miles, 2003.

Symptoms of other psychological disorders may accompany PTS and PTSD. Symptoms of PTS, PTSD, and postpartum depression have been found to exist on a continuum (Creedy et al., 2000; White et al., 2006) or occur in tandem (Zaers, Waschke, & Ehlert, 2008). When co-occurring, a diagnosis of PTSD can go unrecognized by health-care professionals because of the more common identification of symptoms for postpartum depression, thereby resulting in inappropriate treatment for PTSD (Church & Scanlan, 2002).

ASSESSING BIRTH EXPERIENCES

Measurement tools exist that assess different aspects of the birth experience such as prenatal attitudes toward labor and birth (Humenick & Bugen, 1981) and perception of childbirth and support behaviors (Bryanton, Fraser-Davey, & Sullivan, 1994). A few measurement tools incorporating indicators recognized to influence psychological birth trauma focus on the psychological outcome of childbirth and assess trauma impact. The Perceptions of Labor and Delivery Scale (Czarnocka & Slade, 2000) and the Wijma Delivery Expectancy/Experience

Questionnaire (Wijma, Wijma, & Zar, 1998) were developed following *DSM* criteria changes with items parallel to *DSM-IV* PTSD criteria. Based on the woman's perception of a threat to herself and her baby and feelings of helplessness and fear, questions on the Perceptions of Labor and Delivery Scale assess adult women's pleasure of experience, severity of pain, preparedness for labor, fear, ability to cope with event, and support among other areas. The Wijma Delivery Expectancy/Experience Questionnaire measures fear of childbirth by means of a woman's cognitive appraisal of the birth by assessing expectancies before and after birth. The use of the Wijma Delivery Expectancy/Experience Questionnaire has been coupled with the Traumatic Event Scale (Wijma et al., 1997), which reflects the *DSM-IV* criteria for PTSD. Women aged 18 years and older were asked if childbirth "was trying" and "was a threat to physical integrity," and if they were "afraid they were going to die" and if they were "anxious/helpless/horrified."

The Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979), which was used in this study, was not developed specific to the childbirth event but has been evaluated as a screen for the trauma impact of childbirth. Used for years to determine the trauma impact of numerous non-childbirth-related events, the IES has shown utility among adult obstetric samples (Ayers, 2004). No known screening tool exists, however, that specifically assesses the psychological trauma related to the birth experience as perceived by the adolescent. The CTI was developed to determine specific indicators perceived by adolescents as influencing birth trauma. Used along with the IES, the trauma of childbirth among adolescents was explored.

Construct Validity: Conceptual Analysis and the Development of the Childbirth Trauma Index

The steps taken to develop construct validity of a new tool occur over a period of years and may vary by author. The preliminary work presented here provides a conceptual analysis for psychological birth trauma, factorial validity of the CTI, and results from testing the CTI among 112 multiethnic adolescents with and without symptoms of birth trauma (contrasted-groups approach). The first step, a conceptual analysis, clarifies the meaning of the abstract term. Factorial validity examines the relationships between and among the items of the CTI. Testing of the CTI via a contrasted-groups approach involves evaluation among samples of

contrasting characteristics (adolescents with and without birth trauma).

Given the lack of information related to the adolescent's appraisal of childbirth and childbirth trauma impact, the conceptual analysis and determination of items forming the CTI are based on both adult and adolescent childbirth information with the assumption that items negatively affecting appraisal of childbirth and resulting trauma impact would be somewhat similar. It is important to note that not all items explored in the literature in relationship to birth appraisal or a trauma stress response—such as specific demographics (age, marital status, level of education, parity), blood loss, and risk factors for PTSD, including a history of sexual or physical abuse and neuroticism (Ayers, 2004)—are included in the conceptual analysis or the CTI. These items are important but have had inconsistent findings in the literature (demographics in general) or are considered out of context to the childbearing event.

Fourteen items frequently noted in the literature describing psychological birth trauma are core to the conceptual analysis and provide the foundation of the CTI. Nine items pertaining to labor and birth assess adolescent expectant mothers' feelings of anxiousness, general fear, fear of dying, fear of a never-ending labor, kindness of care provider, pain control, support from care provider, support from father of the baby, and fear of loss of control. One item assesses the adolescent's subjective appraisal of the childbirth experience. Four items assess prenatal fears and stressors possibly considered by adolescents: (1) fear of giving birth prematurely, (2) fear of experiencing cesarean surgery, (3) fear because of limited or no prenatal care, and (4) stress caused by an unplanned pregnancy.

All items in the CTI have received exploration in numerous studies as influencing psychological birth trauma. Ayers (2004) integrated review reported that indicators most consistently supported as risk factors for a severe trauma stress response and/or PTSD prenatally include anxiety, poor coping, low support, and history of psychiatric problems. Unplanned pregnancy and prenatal care are less often noted in the literature as influences on birth appraisal and/or trauma impact (Ayers, 2004); however, their importance may be significant for adolescents. Cheng, Schwarz, Douglas, and Horon (2009) identified 65.8% of adolescent pregnancies ($n = 2,188$) as unplanned or "mistimed" and noted these pregnancies often led to delayed prenatal care. To the adolescent, an unplanned pregnancy may

assume an additional level of personal stress and represent a different set of circumstances than for an adult. Stress related to an unwanted pregnancy may lead to feelings of embarrassment, financial difficulties, denial, or early termination of the pregnancy. Ayoola, Nettleman, Stommel, and Canady (2010) discussed the connection between early recognition of pregnancy and improved timing with number of prenatal visits.

Four important risk factors at birth explored as influencing birth trauma include (1) pain in labor, (2) support in labor, (3) type of birth, and (4) control (Ayers, 2004). Pain management appears to be more significant to adolescents than to adults (Bryanton et al., 1994), and may be a hallmark feature of the adolescent's birth experience. Research exploring adolescents' appraisal of labor support identified three primary concerns: (1) pain relief, (2) nonjudgmental nursing care, and (3) emotional support (Sauls, 2004). Support by the nurse may be multidimensional and perceived positively by the adolescent with adequate provision of pain medication, competency of care, praise and emotional support, adequate information related to labor and birth, a nonjudgmental manner, or simply the nurse's presence. Support by a significant other also influences the quality of the birth experience for adolescents and for adults (Bryanton, Gagnon, Johnston, & Hatem, 2008); however, adolescent partners may not be present or in a situation to lend support. Younger adolescents particularly may prefer the presence and/or support of their mother or a nurse over the presence and/or support of a partner.

The manner of birth (vaginal birth or cesarean surgery) and control have also been identified as predictors of a quality birth experience for women aged 16–43 years old (Bryanton et al., 2008). An unexpected cesarean surgery may cause stress for any woman and may result in feelings of a loss of control. The importance of loss over control, however, may vary between adults and adolescents. Depending on her locus of control, an adolescent's assessment of the level of stress, if control is lost, may be a more valid indicator for psychological birth trauma than simply a loss of control. Younger adolescents may show different levels of stress with loss of control and more readily relinquish personal control to a family member or nurse.

Other items on the CTI—such as appraisal of the birth experience, general fear of labor and birth, fear of dying, and fear of a premature birth (gestational age of infant/infant condition)—have also received

attention in the literature as factors that influence birth trauma. Table 1 provides references for all CTI indicators.

A schematic map of the interrelationships between items in the CTI is illustrated in Figure 1. Significant correlations between items are generally of moderate or greater strength ($>.30$). The significant ($p < .01$) correlation (.27) between prenatal care and lose control is provided to display a bridge between two identified correlational clusters of items. A significant correlation (.23) illustrates the link between appraisal of birth and trauma impact (see Table 2).

The 14-item CTI offers four responses per question scored from 0 (*no*) to 3 (*most of the time*) for a total score of 42, with higher scores reflecting more stressful impact from multiple selected indicators of childbirth trauma. Sensitivity has been measured at 64% with a probability level of 0.60. At the probability level of 0.60, a score of 9 or greater was found to suggest some stressful impact from childbirth for several indicators. Use of the CTI among 112 multiethnic adolescents between the ages of 13 and 19 years old established a Cronbach's alpha of .70. "For a newly developed psychosocial instrument, a reliability coefficient of 0.70 is considered acceptable as the researcher refines the instrument to achieve a reliability of $+ / > 0.80$ " (Burns & Grove, 2009, p. 377). The development of the CTI is in its infancy and requires additional testing among larger samples of multidiverse adolescents, especially African American and Caucasian, to determine the usefulness in assessing indicators of birth trauma among adolescents. The following discussion describes the evaluation of the CTI among 112 multiethnic adolescents.

TESTING OF THE CHILDBIRTH TRAUMA INDEX

The following research questions were explored:

1. What is the experience of childbirth (rating of birth appraisal and trauma impact) among adolescents aged 13–19 years old as measured by subjective report and the IES 72 hours postbirth?
2. What relationship exists between birth appraisal and trauma impact?
3. What indicators on the CTI are associated with childbirth appraisal and trauma impact among adolescents aged 13–19 years old?

Method

This institutional review board-approved descriptive study was conducted to examine the incidence

TABLE 1

Childbirth Trauma Index Items and Published Associations With Traumatic Birth Appraisal, Trauma Stress, and/or Posttraumatic Stress Disorder

Category—Item	Reference(s)	Comment (How concept was referred to in this study)
Subjective categories		
• General fear (labor and birth)	Saisto & Halmesmäki (2003)	"fear"
• Anxiousness/panic	Ayers (2004); Czarnocka & Slade (2000)	"trait anxiety"
• Fear of uncontrolled pain	Allen (1998); Ayers (2004); Creedy, Shochet, & Horsfall (2000); Lyons (1998); Menage (1993); Sauls (2004)	
• Fear of loss of control	Allen (1998); Ayers (2004); Bryanton, Gagnon, Johnston, & Hatem (2008); ^a Czarnocka & Slade (2000); Lyons (1998); Maes, Delmeire, Mylle, & Altamura (2001); Menage (1993); Wijma, Söderquist, & B. Wijma (1997) ^a	(16–43 years old; mean = 28.4) (17–40 years old; mean = 28.5) "powerlessness"
• Fear of dying	Nichols (1996) Ryding, Wijma, & Wijma (1998)	"fear for survival" "fear of death or injury to self or baby"
Obstetrical categories		
• Length of labor	Ayers (2004); Soet, Brack, & Dilorio (2003)	"long, painful labors"
• Type of birth	Ayers (2004); Bryanton et al. (2008); ^a Creedy et al. (2000); Ryding, Wijma, & Wijma (1997); Soet et al. (2003); Wijma et al. (1997) ^a MacLean, McDermott, & May (2000) Gamble & Creedy (2005) ^a	"vaginal birth versus cesarean surgery"; "vacuum/forceps"; "emergency versus nonemergency"; "level of obstetrical interventions" "instrumental deliveries" "operative birth" (posttraumatic stress disorder) (6.8% "less than 20" years old)
• Infant gestational age	Demier, Hynan, Harris, & Manniello (1996); Holditch-Davis, Bartlett, Blickman, & Miles (2003) Affleck, Tennen, & Rowe (1991) Rogal et al. (2007)	Premature infants and posttraumatic stress disorder Posttraumatic stress disorder and preterm births
• Prenatal care	Saisto & Halmesmäki (2003)	"lack education/ no childbirth classes"
• Unplanned pregnancy	Ayers (2004)	
Personal categories		
• Appraisal of birth experience	Beck (2004); Wijma et al. (1997) ^a	Negative cognitive appraisal of past birth experience
• Support: family/friends	Ayers (2004); Creedy et al. (2000); Menage (1993)	Support in general
• Support: father of the baby	Ayers (2004); Bryanton et al. (2008); ^a Czarnocka & Slade (2000)	
• Support: caregiver	Ayers (2004); Beck (2004); Creedy et al. (2000); Czarnocka & Slade (2000); Menage (1993); Soet et al. (2003); Wijma et al. (1997) ^a	"perceived lack of care/knowledge of caregiver"; "lack of communication"; "negative contact"; "blaming by staff"; "unsympathetic attitude"
• Caregiver kindness		

^aIf mention of adolescent subjects (<18 years old).

of childbirth trauma and evaluate the usefulness of the CTI in distinguishing indicators associated with childbirth trauma among adolescents aged 13–19 years old within 72 hours of childbirth. All participants were requested to complete the CTI in relation to their childbirth experience only. In addition to the CTI, a subjective appraisal of childbirth trauma was assessed, and a screen for trauma impact using the IES was completed.

Sampling and Setting

One hundred twelve adolescents of multiethnic backgrounds were recruited from two postpartum units of a large, public hospital in the southwest region of the United States. Full explanation of the study to postpartum staff and supervisors was made prior to adolescent enrollment. When data collectors arrived on the units, charge nurses prepared a list of adolescents meeting the following inclusion

Figure 1. Associated concepts within the Childbirth Trauma Index. IES = Impact of Event Scale; C/S = cesarean surgery.

criteria: 13–19 years of age, either English or Spanish speaking, 1–3 days postbirth, and access to a telephone for follow-up. Target adolescents were then approached by data collectors with an explanation of the study and consent materials. More than 90% of adolescents agreed to participate in the study. Non-participants included underage adolescents without a parent or guardian available, non-English/non-Spanish speaking, or disinterested, having no time, or not feeling well.

Measurements

The IES assesses two dimensions of the experience of trauma impact for any specific life event, measuring the re-living of an experience (intrusion) and avoidance in response to the stressful event. For this study, the IES screened for symptoms of acute trauma impact related to childbirth within 72 hours of birth. The IES has been used with children facing traumatic events as young as 8 years of age (Vila et al., 2001) and has a Flesh-Kincaid Grade Level score of 6.6 with a caution for one item requiring some internal psychological process.

For adolescents, the total scale demonstrates an internal reliability of 0.60 to 0.90 with events other than childbirth. Previous use of the IES exploring childbirth trauma among adults (Creedy, 1999; Davies, Slade, Wright, & Stewart, 2008) has noted reliabilities between .80 and .90 (Creedy, 1999). Reliability for this sample of adolescents was established at .82. The 15 items of the IES are scored from 0 to 5 and added together; a higher cumulative score reflects more stressful impact because of trauma. A single question determined ranking of birth appraisal by adolescents from *nontraumatic* (0) to *traumatic* (10).

Procedures

Upon receiving the list of postpartum adolescents, research assistants approached the adolescents and explained the study. Volunteers assented into the study and parent/guardian consent was obtained for adolescents younger than 18 years of age, per state law. According to adolescent preference, either English or Spanish packets were provided. Spanish-speaking adolescents were interviewed

TABLE 2
Correlation Matrix: Intercorrelations Among Factors Influencing Birth Trauma

Item	Provider Kindness	Pain Control	Fear – Lose Control	Rank Child-birth	Support from Health-Care Provider		Support from the Baby		Fear of Dying		Labor not End		Fear of Premature birth		Cesarean Surgery	Prenatal Care	Unplanned Pregnancy
					Health-Care Provider	Support from the Baby	Anxiousness	Fear	Dying	End	Premature birth						
Provider kindness	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.20*
Pain control	—	—	.37**	—	—	—	.20*	—	.30**	.28**	—	—	—	—	—	—	—
Fear – lose control	—	.37**	—	—	—	—	.24*	.46**	.29**	.50**	.23*	—	.27**	—	—	—	—
Rank childbirth	—	—	—	—	—	—	—	.34**	—	.27**	—	—	—	—	—	—	—
Support from health-care provider	—	—	—	—	—	—	—	—	.24*	—	—	—	—	—	—	—	—
Support from father of the baby	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.20*	—	.29**
Anxiousness	—	.20*	.24*	—	—	—	—	.31**	.21*	.24*	—	—	.28**	—	—	.21*	—
Fear	—	—	.46**	.34**	—	—	.31**	—	—	.38**	.28**	—	.28**	—	.22*	.28**	—
Fear of dying	—	.30**	.29**	—	.24*	—	.21*	—	—	.29**	—	—	—	—	—	—	—
Labor not end	—	.28**	.29**	.27**	—	—	.24*	.38**	.29**	—	.28**	—	.28**	—	—	.20*	—
Fear of premature birth	—	—	.23*	—	—	—	—	.28**	—	.28**	—	—	—	—	—	—	—
Cesarean surgery	—	.23*	—	—	—	—	—	.22*	—	—	.34**	—	—	—	—	—	—
Prenatal care	—	—	.27**	—	—	—	.21*	.28**	—	.20*	.39**	—	—	—	—	—	.43**
Unplanned pregnancy	.20*	—	—	—	—	—	.29**	—	—	—	—	—	—	—	.43**	—	—

* $p < .05$. ** $p < .01$.

by Spanish-speaking research assistants. Each research assistant received a 2.5-hour orientation on data collection protocol by the primary investigator prior to study involvement and completed the university-required institutional review board research compliance testing prior to data collection. The research assistants remained available in the adolescent's room for questions throughout administration of the tools.

Data Analysis

Descriptive statistics were used to describe the sample, the birth experience via birth appraisal and trauma impact, and the indicators influencing trauma impact among the adolescents. Spearman's rho determined the relationship between birth appraisal and trauma impact.

RESULTS

Adolescents ranged in age from 15 to 19 years old, with a mean age slightly older than 17 years old. More than 65% ($n = 73$) of the adolescents were Hispanic; however, all but 12 were bilingual or English speaking only. Bilingual adolescents were deemed competent in English through conversations prior to the distribution of materials. The majority reported single status ($n = 97$, 87%), an unplanned pregnancy ($n = 73$, 64.3%), and 12th-grade or higher education ($n = 84$, 75%). More than 66% ($n = 74$) of the adolescents were primiparas and experienced a vaginal birth ($n = 84$, 75.2%). More than two-thirds ($n = 75$) of the adolescents reported labors lasting 9 or more hours. More than half of the adolescents ($n = 63$, 56.1%) reported less than nine prenatal care visits; however, infants typically were born at full term (more than 37 weeks) without complications ($n = 86$, 77.1%). Most of the adolescents ($n = 75$, 67%) reported father of the baby, mother, sister, other relatives, or friends provided labor support. Nearly 60% ($n = 67$) of adolescents reported their mother as their primary support in labor and birth, with 16-year-olds ($n = 6$) and 19-year-olds ($n = 48$) reporting mother and "other" as equally supportive in labor and birth. All adolescents stated care provider support and kindness.

Birth Appraisal and Trauma Impact

Adolescents were almost equally dispersed across the birth trauma rating scale of 0–10. More than one-third ($n = 39$, 34.5%) of the adolescents rated their birth experience between 7 and 10 (with 10 as the most traumatic score); 29.7% ($n = 33$) of adolescents

ranked birth trauma between 4 and 6; and 35.8% ($n = 40$) of adolescents ranked birth trauma between 1 and 3. The IES scores measuring trauma impact ($n = 102$) ranged between 0 and 71, with one outlier. A median of 25 and a mean of 23.9 ($SD = 15.7$) suggested mild trauma impact (>19) for adolescents overall. Thirteen adolescents (12.7%) scored between 19 and 26; nearly half of the adolescents ($n = 50$, 49%) scored over higher than 26, indicating moderate to severe trauma impact. The correlation between rating of birth appraisal for childbirth trauma and IES scores (trauma impact) was found to be weakly significant ($\rho = .231$, $p = .034$).

Childbirth Trauma Index Indicators Associated With Adolescent Childbirth Experience

The three primary indicators reported by approximately 50% of the adolescents as associated with birth trauma impact "most of the time" or "some of the time" were (1) general anxiousness ($n = 77$, 69%), (2) fear regarding labor and birth ($n = 61$, 55%), and (3) fear of a "never-ending labor" ($n = 54$, 48%). Forty percent of the adolescents cited fear of loss of control during labor ($n = 48$, 43%) and fear of a cesarean surgery ($n = 45$, 40%). All indicators are identified in Table 3.

A comparison of CTI indicators reported by adolescents showing mild to severe symptoms of trauma impact (IES scores greater than 18) versus adolescents without symptoms of trauma impact (IES scores less than 19) was made via a contrasted-groups approach.

TABLE 3
Childbirth Trauma Index Items by Description and Percentage of Adolescents Reporting Some/All of the Time ($N = 112$)^a

Item	%	Item	%
Anxiousness	69	Fear of premature birth	31
Fear (labor and birth)	55	Fear from no/limited prenatal care	26
Fear of never-ending labor	48	Stress of unplanned pregnancy	21.4
Fear of loss of control	43	Pain control inadequate	14
Fear of cesarean surgery	40	Rank childbirth traumatic	8
Lack of support from father of the baby	29	Lack of care provider support	4
Fear of dying (labor and birth)	28	Lack of care provider kindness	2

^aAdolescents selected more than one response.

TABLE 4
Childbirth Trauma Index Indicators Reported by Stress Levels (Impact of Event Scale Scores)

Childbirth Trauma Index Indicators Without Stress (IES = 19)	Childbirth Trauma Index Indicators With Stress (IES = 19)	Childbirth Trauma Index Indicators With/Without Stress
Care provider unkindness Fear of loss of control	Pain Lack of care provider support General fear of labor and birth Fear of dying Fear of never-ending labor Fear of premature birth Fear of cesarean surgery Fear caused by limited prenatal care Stress from unplanned pregnancy	General anxiousness Lack of support from father of the baby Ranks birth overall as traumatic

Of the 14 items, nine CTI indicators of birth trauma were reported more frequently by adolescents with IES scores greater than 19. Adolescents with lower IES scores (<19) more often reported care provider unkindness and fear of loss of control. Interestingly, anxiousness, lack of support by the father of the baby, and ranking of birth as traumatic were equally reported among adolescents regardless of IES score (Table 4).

The mean score on the CTI was 10.2 ($SD = 7.3$), with a range of 28 (0–28). Most of the adolescents ($n = 76$, 68%) scored 9 or higher, suggesting some stressful impact from more than one childbirth indicator. The appraisal (ranking) of childbirth trauma correlated significantly with fear in general ($\rho = .37$) and fear that labor would never end ($\rho = .27$). Trauma impact (IES scores) was not found to be significantly related to any single CTI indicator.

To determine the relationship between items on the CTI, a principal components analysis, using an orthogonal rotation, was also conducted. The results revealed that the measure comprised five components with the majority of variance within three primary factors: (1) labor and birth fears, (2) pregnancy fears, and (3) father of infant support. The lowest primary load was .45, which was used as the cutoff point to identify relevant items for each factor. Items loading within Factor I included general fear of labor and birth and specific fears related to a never-ending labor, pain control, fear of loss of control, and fear of dying. Factor II included fears related to premature birth, cesarean surgery, and limited or no prenatal care. Factor III encompassed fears related to unplanned pregnancy, nontraumatic birth experience, and support by the father of the

baby. Two items loaded on each of the two secondary factors (IV and V). Only one secondary loading occurred, that of fear of dying, which loaded on Factor I and Factor IV (Table 5).

DISCUSSION

Approximately one-third of adolescents appraised their childbirth as traumatic, which is similar to published research findings among adults. The participants' IES scores, however, reflected almost 50% of adolescents showing symptoms of moderate to severe trauma impact within 72 hours of birth. In a rare study reporting trauma assessment at 0 to 4 days postpartum, Skari et al. (2002) noted a 9% rate of severe intrusive stress symptoms via the IES among 127 adult women (ages 18–39 years old). Acute stress following childbirth has been considered a “normal” reaction and not totally uncommon as the mother tries to mentally process the event into management pieces without becoming totally overwhelmed (Ayers, 2004). The higher IES scores noted for adolescents, however, suggests a potential vulnerability to more birth trauma. Of interest is the disparity between the subjective and objective report of birth trauma by adolescents.

Use of a single-question-rating appraisal of childbirth trauma may not have provided an accurate indicator for birth appraisal, or IES scores may be inflated because of the sample size and the specific sample characteristics. When rating birth appraisal, a cutoff of 7 may have missed some traumatized adolescents because nearly 50% of adolescents rated their birth trauma between 5 and 10. Disparate findings may reflect the higher number of participating Latina adolescents. Using National Center for Health Statistics data, Abma, Martinez,

TABLE 5
Factor Analysis of Childbirth Trauma Index Items

Variable	Factor				
	I	II	III	IV	V
	Labor and Birth Fears	Pregnancy Fears	Support—Father of Baby	Support—Care Provider	Anxiousness
Fear (general labor and birth)	.57	—	—	—	—
Fear labor would never end	.71	—	—	—	—
Pain controlled	.65	—	—	—	—
Fear of losing control	.76	—	—	—	—
Fear of dying	.58	—	—	.54	—
Fear of premature birth	—	.67	—	—	—
Fear of cesarean surgery	—	.73	—	—	—
Fear from not enough prenatal care	—	.65	—	—	—
Experience was nontraumatic	—	—	.45	—	—
Fear caused by unplanned pregnancy	—	—	.60	—	—
Supported by father of the baby	—	—	.80	—	—
Supported by care provider	—	—	—	.73	—
Anxiousness	—	—	—	—	.62
Provider was kind	—	—	—	—	.82

Mosher, and Dawson (2004) noted 25% of “never married” Latina adolescents, ages 15–19 years old, saw pregnancy as a positive event; 10% reported they would be “very pleased” to get pregnant. Pregnancy preserves family relationships and is a source of pride for Latina adolescents who often plan the pregnancy with their partners many months before conceiving (Foster, 2004). Within this sample of adolescents, nearly half planned the pregnancy and nearly 70% reported the father of the baby as supportive in labor. Therefore, Latina adolescents may have been more reticent to disclose a negative birth experience because of cultural values and beliefs regarding pregnancy and childbirth. Adolescent disclosures for all study participants may reflect a cautious persona. In general, as relates to health-care issues, disclosure is enhanced by the adolescent’s rapport, trust, and experience with the health-care provider (Klostermann, Slap, Nebrig, Tivorsak, & Britto, 2005) or researcher.

Although the exact prevalence may not be known, adolescents are recognized as traumatized postchildbirth. The CTI suggests several indicators characterizing adolescents with acute trauma impact postbirth and reveals focus areas in labor assessment and intervention. Three particular indicators were evident, however, among all adolescents regardless of trauma impact (high or low

IES scores): (1) anxiousness, (2) support by the father of the baby, and (3) birth appraisal. Specific nursing actions can reduce the anxiety of labor, increase involvement by the father of the baby, if present, and enhance the birth experience.

Nursing actions must be culturally competent as well as age appropriate. Effective nursing actions to reduce anxiety and fears in general include increased time with the adolescent to provide explanations and information related to the process and progress of labor, allowance of decision making by the adolescent as appropriate to her labor experience, and facilitation of support by family members and the father of the baby, when present. Emotional support in labor has been shown to be very important to adolescents (Sauls, 2004) and can influence one’s appraisal of childbirth and perceived trauma impact (Ayers, 2004).

Pain management during labor is also important to adolescents. Adolescents often cite pain as the defining characteristic of the birth experience (Nichols, 1996). Lacking pain management, previous childbirth experience, decision-making ability, or

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adequate information related to labor and birth (e.g., usual length of labor), general fear may prevail. The adult woman's desire for mastery of the childbirth experience shows stark contrast to the adolescent's focus on survival. The use of a screening tool such as the CTI can help nurses recognize the indicators of childbirth trauma for adolescents and direct nursing assessments and interventions.

This early-stage research provides insights into the labor and birth experience of adolescents. Recommendations for continued study include further research in the area of birth trauma among adolescents as well as continued development of the CTI and other specific measurement tools related to adolescents. Longitudinal study capturing symptoms of a delayed or chronic trauma stress response and/or PTSD, the use of diagnostics (incorporating *DSM-IV* criteria for PTSD) rather than screening measurements for an assessment of trauma impact, and data collection among a larger, more diverse sample of Caucasian, African American, and Latina adolescents are research recommendations. Further study can also elucidate on the potential "normality" of experiencing difficulties following birth. Thirty years ago, Oakley (1980) suggested that it was normal to experience difficulties following childbirth because of the methods of birth management, life situations, or feelings of control. Years later, Skari et al. (2002) reported that childbirth was not a trigger to long-term psychological distress in most (adult) parents. Recognition of how adolescents react to childbirth requires increased research efforts to determine their vulnerability and consequence to psychological stress following childbirth.

LIMITATIONS

Limitations focus on the measurement tools and sample. A single-item question may not have evaluated the adolescents' birth appraisal effectively. The CTI requires additional testing and use but provides insight into the adolescent's labor experience and indicators influencing psychological birth trauma suggesting direction of nursing care aimed at reducing psychological birth trauma. Adolescents scoring less than 9 on the CTI may not be stressed by childbirth because of cultural, individual, or other protective factors (supports, individual resiliency), or the indicators influencing their labor stress may not be found on the CTI. Characteristics of the sample (primarily Latina) may show a cultural variation for birth stress/trauma impact from other ethnic-racial groups or Caucasian adolescents.

CLINICAL IMPLICATIONS

Adolescents typically seek prenatal care later than other age groups (Montgomery, 2003); however, when childbirth educators have access to adolescents, this study has provided some insight regarding the fears and focus areas for adolescents in labor. Important information for adolescents preparing for birth that may optimize the birth experience and minimize resulting psychological birth trauma include facts about the process of labor (length of labor, pain control); the adolescent's decision-making ability; and the role of family, friends, nurse, and father of the baby in labor. A short discussion may prepare the adolescent with information regarding a potential cesarean surgery. Hospitals with large numbers of adolescents giving birth may consider the development of childbirth classes offered only to adolescents and their significant others. For adolescents with limited or no English language skills, classes with bilingual instructors are very important.

Providing information and assessment to the adolescent for both violence and depression is extremely important. Prenatal depression, for instance, may be more common than depression following birth (Setse et al., 2009). Postpartum nurses must assess for signs and symptoms of early birth trauma as well. Often because of overlapping symptoms, an assessment of depression may lead nurses to overlook potential symptoms of trauma/stress/PTSD (Church & Scanlan, 2002).

Following birth, providing time for sharing the birth experience (filling in the missing pieces) may also prove to be an important nursing action (Bryanton et al., 2008). Encouragement of expression of feelings related to the birth experience has been considered a method of legitimizing emotional responses (Ayers, 2004). Although alternative approaches exist, the common goal is one of preventing the development of PTSD (Ayers, 2004). Currently, controversial research into this specific intervention for postnatal patients would be useful.

CONCLUSIONS

Adolescents may be more vulnerable to childbirth trauma than adults. Nursing assessments and interventions related to childbirth trauma are essential for promoting positive postpartum outcomes for both mother and baby. The utility of the CTI and the IES for practice and assessment of birth appraisal and trauma impact show promise with additional research.

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