THE EFFECTS OF HYPNOSIS AND SUPPORTIVE COUNSELING ON THE LABOR PROCESSES AND BIRTH OUTCOMES OF PREGNANT ADOLESCENTS

By

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A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

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Abstract of Dissertation Presented to the Graduate School of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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By
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Chairman: Dr. Rod McDavis
Major Department: Counselor Education

The purpose of this study was to evaluate the effects of hypnotic and supportive counseling techniques on the labor processes and birth outcomes of pregnant adolescents. Variables assessed included the amount of cervical dilatation at admission to the hospital, length of labor, amount of anesthetic and analgesic drugs used during the delivery process, and infant birth weights. A hypnosis treatment, a supportive counseling treatment, and a no-treatment control group were compared in terms of their effects on the various pregnancy and delivery variables.
The sample consisted of 60 pregnant teenagers who were patients at the Alachua County Public Health Unit in Gainesville, Florida. Their ages ranged from 14 through 18.

A multivariate analysis of variance procedure resulted in a significant F level (F = 5.64), indicating that as a whole, the treatment had an effect on the labor indicators. Univariate analyses of variance were performed to determine the effect of the group treatment on each of the dependent variables and Chi-square analyses were utilized to determine group differences in categorical data.

Findings included significant (p < .05) differences among groups in the amount of cervical dilatation at admission to the hospital and amount of analgesic and anesthetic agents used during labor and delivery, with subjects in the hypnosis and supportive counseling groups having significantly greater dilatation and subjects in the hypnosis group using significantly less anesthesia. No significant differences in perceived length of labor or infant birth weights were found.

It was concluded that the psychological interventions of hypnosis and supportive counseling, when applied to pregnant teenagers during their prenatal treatment, increase the amount of cervical dilatation at admission to the hospital and decrease the amount of anesthesia used during labor and delivery.
The results of the study have implications for the application of psychological approaches to the field of obstetrics, the practice of hypnotic and social support interventions in a medical setting, and the training of practitioners in hypnotic techniques.
CHAPTER ONE
INTRODUCTION

Adolescent pregnancy has become a widely documented phenomenon and an area of concern to counselors, health care providers, and the community at large (Menken, 1972; Stickle & Ma, 1975). On the basis of 1974 statistics, the Planned Parenthood Federation of America declared the adolescent pregnancy rate to be in epidemic proportion (Abbott, 1978). More American teenage girls are becoming pregnant each year--some 1.2 million annually. If current trends continue, it has been predicted that one-third of all 14-year-old girls will become pregnant before reaching their 20s (Mott Foundation, 1981).

Early childbearing has significant social, psychological, and health consequences for both young mothers and their children. The social and emotional costs of early adolescent pregnancy are high and include factors such as psychological stress, truncated education, increased likelihood of divorce and family instability, low-status, low-paying jobs, unemployment, negative parenting styles, and child abuse or neglect (McKenny, Walters, & Johnson, 1979). Teenage pregnancy involves considerable health risks and presents a pressing problem to the health care team. Without substantial prenatal education, social, and medical
services, both the teenage mother and her newborn are considered medically "at risk" (Alan Guttmacher Institute, 1981). The health risks of early childbearing also may be considered in terms of immediate outcomes such as low birth weight, neonatal survival, and maternal complications.

In the past 10 years, researchers have produced a range of facts and figures on teenage pregnancy, hundreds of medical facilities have adopted special teen-oriented prenatal programs, and the federal government has passed funding and legislation for such programs. Research has shown that teenage pregnancies are characterized by numerous complications such as anemia, prolonged or difficult labor, surgical deliveries, birth injuries and neurological defects, prematurity, and low birth weight infants (Stickle & Ma, 1975). The three major psychosocial factors influencing these outcomes appear to be 1) a lack of social support, 2) a lack of knowledge or education about childbirth, and 3) anxiety and stress (Gorsuch & Key, 1974; McDonald, 1968; Nuckolls, Cassell, & Kaplan, 1972). The adverse affects of an early pregnancy on both young mothers and their infants make teenage pregnancy one of the most pressing health problems in the United States today.

Statement of the Problem

The problem area addressed in this study is the psychological stress and physiological difficulty experienced by pregnant teenagers during labor and delivery.
Psychological interventions were used in an attempt to eradicate or limit this problem. The methods utilized, focused relaxation and imagery as well as supportive counseling, were compared in terms of their effectiveness. Focused relaxation and imagery are the main components of hypnosis, a psychological intervention historically used for teaching the mechanics of childbirth and the precursor of the Lamaze and Natural Childbirth methods (Chertok, 1959). These two terms, "focused relaxation and imagery" and "hypnosis," are used interchangeably in this study.

In an attempt to ameliorate the adverse affects of teenage pregnancy, comprehensive educational and health care programs have been developed which focus specifically on teenagers. These programs involve multi-level interventions including prenatal care, nutrition, social services, and childbirth education. Research with pregnant teenagers or with the comprehensive programs designed to serve them has been fraught with difficulties. Many studies have been poorly conducted and hard to compare because different populations were used and controls were inadequate or unavailable. There also has been a lack of agreement in the choice of appropriate criteria to index pregnancy outcomes and difficulty with the generalizability of findings from one sample to another (Phipps-Yonas, 1980).

In addition to the methodological problems of research with pregnant teenagers, the outcomes of such efforts have
been diverse. Stine and Kelly (1970) reported modest successes in lowering the rate of low birth weight infants and decreasing prematurity. Osofsky and Osofsky (1970) reported significant decreases in perinatal death. Sarrel and Klerman (1969) reported a decrease in toxemia and inadequate weight gain, differences usually attributable to increased quality of prenatal care and nutrition. Other researchers reported increased contraceptive compliance and decreased repeat pregnancies (Jekel, Currie, Klerman, McCarthy, Sarrel, & Greenberg, 1972).

Despite extensive research on teenage pregnancy, efforts to prevent or ameliorate labor difficulties and complications with delivery among teenagers have not been successful. Though the research on teenage pregnancy has had a positive influence on the development of health care delivery systems and the health consequences of teenage pregnancy have been well documented, psychological interventions which address the labor and delivery difficulties of this population have not been evaluated fully.

Many of the negative results of teenage pregnancy are incurred early during the gestation period or at birth and appear to be related to psychological or social factors which do not fall within the traditional limits of medical practice (Babson & Benson, 1966; Pratt, Janus, & Sayal, 1977; Schwartz & Schwartz, 1977). In more mature
populations, research has shown that psychological factors consistently predict the likelihood of a high-risk pregnancy (Lee, Paneth, & Gartner, 1980). It appears that these factors involve the mother's emotional stability and added stress perceived in being pregnant. Adolescence itself normally imposes significant stress and psychosocial adjustments, in addition to the physical and emotional stress of pregnancy. Life stresses without reciprocal life assets, a constant state for most pregnant teenagers, appear to have a powerful psychological influence on labor and delivery.

Studies over the last two decades have empirically supported the use of psychological interventions during the pregnancy of high-risk mothers (Blau, Welkowitz, & Cohen, 1964; Creasy, Gummer, & Liggins, 1980; Grimm & Venet, 1966; McDonald, 1968; Nuckolls, Cassell, & Kaplan, 1972). Hypnosis is a psychological intervention well-documented as effective in dealing with various complications of pregnancy and the anxiety, fear, and pain related to childbirth (Abramson & Heron, 1950; American Medical Association, 1983; August, 1961; Kroger, 1960; Werner, 1959, 1965; Werner, Schauble, & Knudson, 1982; Weinberg, 1963).

**Purpose of the Study**

The purpose of this study was to evaluate the effects of hypnosis and supportive counseling techniques on the labor processes and birth outcomes of pregnant adolescents.
Hypnosis was used in childbirth before the development of chemoanesthesia and recently has been recognized by the American Medical Association (1983) as a valuable aid in routine obstetrical practice. This method has been well documented as effective in reducing the need for chemical anesthesia (August, 1960; Callan, 1961; Davidson, 1962; Heron & Abramson, 1952), reducing fear and anxiety associated with pregnancy (Coulton, 1966; Fening, 1961), and reducing the likelihood of prematurity in high-risk patients (Abramson & Heron, 1950; Knudson, 1984). Little use has been made of hypnosis in attempts to reduce the difficulty of labor and delivery among adolescents.

Need for the Study

Many different approaches have been proposed to prevent untimely pregnancies for teenagers and to improve the outcome of those that are intended or that cannot be prevented. A multiplicity of current and proposed programs by public and private agencies address specific health, educational, and psychosocial aspects of the problem. Issues remain, however, for scholars interested in pursuing investigations concerned with reducing the risks of poor outcomes for teenagers and their babies.

Traditional methods of teaching childbirth education seem to be inappropriate in their application to teenagers. Methods such as Lamaze (Psychoprophylactic Method) or Natural Childbirth (Grantley Dick-Read Method) consist of a
minimum of six sessions and usually assume the expectant mother will be accompanied at the birth by a spouse or partner. Teenagers frequently enter the medical setting late in pregnancy and exhibit a high incidence of "no shows" for scheduled clinic appointments. This makes their accessibility for learning about the mechanics of childbearing limited. They also generally have limited social supports during pregnancy and experience stress and anxiety concerning the transition to motherhood.

In 1975, the American Public Health Association (APHA) recognized the need for short-term, cost-effective methods of teaching childbirth education to teenagers. In their report "Ambulatory Maternal Health Care and Family Planning Services: Policies, Principles and Practice," APHA advocated that adolescents have routine access to special classes on prenatal growth and development and childbirth education within a program of consistent counseling. Klerman and Jekel (1973) in their "Evaluation of Programs for Adolescents," reported that in addition to the classic triad of services for adolescents--medical, social, and educational--the extra support services including counseling and stress reducing interventions are so important as to be considered crucial.

Cornely (1981) also recognized the need for childbirth education and supportive counseling. Cornely stated that counseling and childbirth education services "have relevance
for all mothers, but particularly those women from deprived backgrounds who are stressed, unsupported, or otherwise at the limits of adaptability, such as pregnant adolescents" (p. 160). Hypnosis meets this need. It can be administered in a short-term, cost-effective format and has the capacity, through suggestion, to address the specific needs of teenagers.

**Significance of the Study**

This investigation has important implications for the understanding of the nonmedical factors involved in prematurity and difficulty in labor and delivery and for the application of psychological approaches within a medical setting. Though medical research has focused on physiological causes of obstetrical complications, existing data appear to indicate that difficulties in labor and delivery are preceded by, or are attendant to, psychosocial factors. A few studies have focused on delineation of psychological factors influencing pregnancy outcome (Davenport-Shack, 1975; Hartman & Rawlins, 1960; Kroger & Freed, 1951; Nuckolls, Cassell, & Kaplan, 1972). The result has been the development of treatment packages effective in increasing the likelihood of uncomplicated birth experiences which focus on social support, the reduction of stress, and positive attitudes toward pregnancy.

Kinnell and Klaus (1971) recognized the need for social support and childbirth education for adolescents. They
believed one major thrust of research should be directed toward studies that might indicate the benefits of a consistent human companion during pregnancy and the alleviation of stress. The present study represented another contribution to the body of research focused on the effect of social support and childbirth education on pregnancy and the role of psychological factors in the labor and delivery of pregnant teenagers.

Research focused on the risks of adolescent childbearing are found in multiple professional journals, reflecting the lack of coordination among professionals concerning this issue. A multidisciplinary approach which addresses the psychological as well as physiological components of patient care is necessary to implement comprehensive treatment packages, as is an atmosphere of cooperation among a diversity of professionals. "An interdisciplinary, comprehensive approach is called for in dealing with adolescent pregnancy. Physicians, nurses, educators, psychologists, nutritionists, social workers, vocational counselors and other providers must work together" (Stickle, 1981, p. 15).

The recent rise in the holistic medical movement and the development of the field of health psychology have encouraged a greater appreciation of interdisciplinary approaches to complex problems, making such merged treatment packages a possibility. Such a program may offer patients a
concept of prevention, intervention, and aftercare that enhances their physical and mental well-being beyond the initial medical intervention, and may impact not only mothers and developing fetuses but also developing children and overall quality of life for the family. Therefore, the design of this study models a cooperative effort among professionals to bring about effective change in the health status and lives of patients.

This study represents a contribution to the body of research on the use of hypnosis in obstetrics by extending hypnotic interventions to the adolescent population. Limited use of hypnosis with pregnant adolescents has been reported. It has been suggested that hypnosis as a tool in obstetrics be revived (Werner, Schauble, & Knudson, 1982).

**Definition of Terms**

**Analgesic** refers to an agent that alleviates pain without causing loss of consciousness; not sensitive as to pain. In this study there were seven levels of analgesic treatment defined as 1) no treatment, 2) treatment with phenergan, 3) treatment with stadol, 4) treatment with a combination of phenergan and stadol, 5) treatment with epidural procedures, 6) treatment with epidural procedures and phenergan or stadol, and 7) treatment with general anesthesia.

**Anesthesia** denotes the loss of feeling or sensation, especially loss of the sensation of pain, as it is induced
to permit performance of surgery or other painful procedures (Dorland's Illustrated Medical Dictionary, 1981).

**Antenatal period** refers to the period of time prior to birth. Antenatal denotes the developing period for the fetus and may signify any conditions occurring in or to the fetus prior to birth (Varney, 1980).

**Cervical dilatation at admission to the hospital** is the amount of openness of the cervical os when the patient is admitted to the hospital for delivery. It is reported in centimeters.

**Chorioamnionitis** refers to the inflammation of the chorion in addition to the amnion and amnionic sac (Varney, 1980).

**Cord prolapse** refers to the premature expulsion of the umbilical cord in labor before the fetus is delivered (Dorland's Illustrated Medical Dictionary, 1981).

**Decreased fetal heart rate variability** refers to less than average, i.e., minimal or absent variability, indicating depression of the nervous mechanisms controlling the fetal heart rate due to immaturity, congenital anomalies, medication given the mother, or conditions causing fetal anoxia and acidosis (Varney, 1980).

**Dilatation of the cervix** involves the enlargement of the cervical os or opening in the neck of the uterus from an orifice a few millimeters in size to an aperture large enough to permit the passage of the fetus, that is, to a
diameter of about 10 centimeters (Reeder, Mastroianni, & Martin, 1980).

Epidural anesthesia is anesthesia produced by introduction of the anesthetic agent into the epidural space of the vertebral canal (Dorland's Illustrated Medical Dictionary, 1980).

Fetal bradycardia is a fetal heart rate of 120 beats per minute or less where a baseline rate between 120 and 160 beats per minute is considered normal. Terminal fetal bradycardia occurs in the second stage of labor when the fetus is being expelled. Extended fetal bradycardia is in excess of three minutes (Pritchard & MacDonald, 1980).

Footling breech presentation refers to the presentation of the fetus in labor with one (single footling) or both feet (double footling) prolapsed into the maternal vagina (Dorland's Illustrated Medical Dictionary, 1981).

Focused relaxation and imagery are the main components of hypnosis (Florida Society of Clinical Hypnosis, 1981).

Frank breech presentation describes the presentation of the buttocks of the fetus in labor, with the legs extended against the trunk and the feet lying against the face (Dorland's Illustrated Medical Dictionary, 1981).

Fractionation is a method designed to deepen hypnosis. It consists of alternately going in and out of hypnosis. Sometimes the subject is questioned when out of hypnosis concerning his or her feelings while in the trance. This
information is then fed back to him or her upon the next trance (Florida Society of Clinical Hypnosis, 1981).

**Gastroschisis** is a congenital fissure of the abdominal wall not involving the site of the insertion of the umbilical cord. It is usually accompanied by protrusion of the small and part of the large intestine (Dorland's Illustrated Medical Dictionary, 1981).

**General anesthesia** is a state of unconsciousness produced by anesthetic agents with absence of pain sensation over the entire body and a greater or lesser degree of muscular relaxation. The drugs producing this state can be administered by inhalation, intravenously, intramuscularly, rectally, or via the gastrointestinal tract (Dorland's Illustrated Medical Dictionary, 1980).

**High-risk pregnancy** refers to a pregnancy in which the fetus has an increased chance of dying either before, during, or after birth and/or a greater probability of disability (Hicks, 1982).

**Hypnosis** may be defined as an altered state of consciousness characterized by an induced trance or sleep in which the susceptibility of the person's mind to suggestion or direction is increased. Focused relaxation and imagery are the main components of hypnosis (Gibson, 1977).

**Hypotonic uterus** is a form of uterine dysfunction when contractions have a normal pattern but the rise in pressure
developed during a contraction is insufficient to dilate the cervix at a satisfactory rate (Pritchard & MacDonald, 1980).

**Infant birth weight** refers to the weight of the infant at birth reported in grams. Low birth weight is a weight of less that 2,500 grams, or 5.5 pounds, regardless of length of gestation (Dorland's Illustrated Medical Dictionary, 1981).

**Length of labor** refers to the interval of time beginning with the mother's report of the first regular contraction through the birth of the infant. Labor may be divided into three stages: The first stage begins with the onset of regular uterine contractions and ends with the complete dilatation of the cervical os. The second stage extends from the end of the first stage until the expulsion of the infant is completed. The third stage extends from the expulsion of the child until the placenta is expelled and contraction of the uterus is completed (Dorland's Illustrated Medical Dictionary, 1981).

**Macrosomatia** is an obese type of premature fetal development, probably dependent on hyperfunction of the adrenal cortex (Dorland's Illustrated Medical Dictionary, 1981).

**Magnesium sulfate therapy** is a standard treatment given intravenously or intramuscularly to prevent or arrest convulsions and prevent their recurrence in eclamptic or preeclamptic patients (Pritchards & MacDonald, 1980).
Meconium is the dark greenish-black substance in the large bowel of the fetus consisting of undigested debris from swallowed amniotic fluid and various products of secretion and excretion by the gastrointestinal tract (Pritchard & MacDonald, 1980).

Multiple late decelerations are periodic fetal heart rate changes which occur late in the uterine contraction. A pattern of late deceleration is thought to be due to uteroplacental insufficiency and is an acute life-threatening condition (Varney, 1980).

Multiple variable decelerations are fetal heart rate changes which vary in relation to the onset of uterine contractions. A pattern of variable deceleration is thought to be due to compression of the umbilical cord. Variable deceleration is a sign of fetal distress (Varney, 1980).

Multigravida refers to a woman who has been pregnant more than once. It is also written gravida II, III, etc. according to the number of pregnancies (Dorland's Illustrated Medical Dictionary, 1981).

Natural Childbirth (Grantley Dick-Read method) is based on the fear-tension-pain concept. This implies that fear regarding labor arouses tension which will then create pain when the contractions occur. Treatment has been to offer expectant mothers significant quantities of understandable information concerning the birth process and assurance to
the effect that labor does not have to be painful (Read, 1933, 1943, 1953).

**Neonatal period** specifies the first 28 days after birth of the infant. The term relates to the first "month" of the newborn's life (Silverman, 1961).

**Parity** refers to the condition of a woman with respect to her having born children, i.e., multiparous, primiparous.

**Perinatal period** denotes the time interval from the 20th week of gestation through the first week following birth. The term is used to signify the time around and including the actual birth (Silverman, 1961).

**Phenergan** (promethazine hydrochloride) is an injection which produces antihistaminic, sedative, antimotion-sickness, and antiemetic effects. It is indicated for obstetric (during labor) sedation and is usually administered in intramuscular or intravenous injection (Physician's Desk Reference, 1986).

**Pitocin** is the trademark for preparations of oxytocin, a uterine-contracting and milk-ejection acting hormone. It is administered intramuscularly or by intravenous infusion to induce active labor, increase the force of contractions in labor, contract the uterine muscle after delivery of the placenta, control postpartum hemorrhage, and stimulate milk ejection (Dorland's Illustrated Medical Dictionary, 1981).

**Posthypnotic suggestion** is an idea which is so presented that it is accepted by the patient with a minimum
of analysis, criticism, and resistance. This will lead to or modify behavior (Florida Society of Clinical Hypnosis, 1981).

**Preeclampsia**, or hypertension of pregnancy, is a toxemia of late pregnancy characterized by hypertension, edema, and protunuria; when convulsions and coma are associated, it is called eclampsia (Dorland's Illustrated Medical Dictionary, 1981).

**Prematurity** is a generalized term used for infants that are considered to be born prior to the optimal gestation period. The most typical measurements for this condition involve birth weight and gestational age at birth (Field et al., 1979).

**Premature rupture of the membranes** refers to rupture of the amniotic sac at any time before the onset of labor irrespective of the duration of gestation (Pritchard & MacDonald, 1980).

**Prenatal period** refers to the time existing or occurring before birth, with reference to the fetus (Dorlands Illustrated Medical Dictionary, 1981).

**Primigravida** is a term used to describe a woman pregnant for the first time. It is also written gravida I (Dorland's Illustrated Medical Dictionary, 1981).

**Prolapse** is the falling down or slipping out of place of a body part or organ (Dorlands Illustrated Medical Dictionary, 1981).
Psychoprophylactic method (Lamaze method) refers to a method of prepared childbirth based on the work of Velvosky and developed out of Pavlovian conditioning theory. The method states that labor is not inherently painful, but rather a learned reaction. The method is one of "relearning" and conditioning (Chertok, 1973; Hilgard & Hilgard, 1975; Lamaze, 1958).

Ritodrine is a compound commonly employed in attempts to arrest labor.

Secondary arrest of dilatation refers to the cessation of progressive cervical dilatation in the active phase, prior to full dilatation, for two hours or more (Dorland's Illustrated Medical Dictionary, 1981).

Stadol is a narcotic analgesic. It is a member of the phenanthrene series, approximately equivalent to morphine. It is usually administered in intramuscular or intravenous injections (Physician's Desk Reference, 1986).

Supportive counseling is characterized by an empathetic attitude toward the young mother. "Supportive care" includes not only emotional support but listening and information giving aspects of counseling which in the total context of care contribute to the well-being and comfort of the mother and hence to her emotional equilibrium. (Reeder, Mastroianni, & Martin, 1980).

Toxemia of pregnancy refers to disorders of pregnancy encountered early in gestation characterized by one or more
of the following signs: hypertension, edema, albuminuria, and in severe cases, convulsions and coma (Reeder, Mastroianni, & Martin, 1980).

Trance is a term used to describe the hypnotic experience. The word "state" may be used instead (Florida Society of Clinical Hypnosis, 1981).

Organization of the Study

The remainder of this study is organized into four chapters. The second chapter contains a review of the related literature. Topics discussed in this chapter include a review of research using obstetrical hypnosis and its advantages in obstetrical practice, a review of the literature related to adolescent pregnancy, and a review of psychological methods used in obstetrics. The third chapter contains a description of the research methodology including hypotheses, design of the study, population and sample, procedures, treatment, instrumentation, analysis of the data, and limitations of the study. The fourth chapter contains a presentation of the results and a discussion of the results. The fifth chapter includes the findings, implications, summary, and recommendations for future research.
CHAPTER TWO
REVIEW OF THE LITERATURE

The review of the literature in this chapter includes an overview of hypnosis in obstetrics, adolescent pregnancy (psychological, stress, and social support factors), and psychological interventions in pregnancy. In addition, relevant literature on childbirth education is discussed and three psychological methods used in obstetrics are presented.

**Hypnosis in Obstetrics**

Hypnosis is one of the oldest of the medical arts and has been practiced in the civilized and uncivilized world for the relief of pain in childbirth for centuries (Kroger & Fezler, 1976). It was one of the principal techniques of pain relief for delivery in the 16th and 17th centuries and was recognized by the Royal Academy of Medicine in Austria in 1833 as an effective obstetrical analgesic (Bromberg, 1954). Hypnosis was practiced by European physicians throughout the late 1800s, especially in France and Germany, and by 1925, an obstetrical clinic specializing in hypnotic deliveries was established by von Oettingen in Heidelberg, Germany (Chertok, 1959).

Following the French and German technique, hypnosis was used in obstetrics in Russia at the beginning of the 20th
century. Two Russian physicians, Platonov and Velvowski, combined hypnosis with Pavlovian conditioning in developing a method to psychologically reduce pain in childbirth. The technique became popularized in Russia with 80% of women not using any anesthesia/analgesic during labor (Platonov, 1937). Use of the method was supported by Joseph Stalin, and for more than 20 years 60% of the country's pregnant populace was delivered by hypnosis combined with conditioned reflexology (Chertok, 1959).

In 1952, Ferdinand Lamaze brought the work of Velvowski to France as "L'accouchement sans douleur" or "Childbirth without pain." Lamaze objectified the approach and made its teachings specific while carefully interpreting suggestions throughout the training. The training involves learning the mechanics of childbirth, relief of pain by eliminating fear, use of respiratory exercises, and appropriate responses during labor and delivery. Both mother and father are involved as active participants in learning the method and in the birth itself (Hilgard & Hilgard, 1975).

As a result of the medical profession's increased interest in relaxation procedures for painless childbirth and a need to decrease the problems involved with chemoanesthesia for both mother and child, a marked increase in the scientific application of hypnosis in obstetrics became apparent in the 1950s and early 1960s (Buxton, 1962). The literature concerning the use of hypnosis in obstetrics
during this period falls into three main categories:
narrative reports by physicians who used hypnosis almost
exclusively in their practice (August, 1965; Callan, 1961;
Werner, 1959; Winklestein, 1958), case studies on the
application of hypnosis for obstetrical surgery and other
complicated obstetrical procedures (August, 1961; Coulton,
1960; Fry, 1959; Kroger & DeLee, 1957; Weinberg, 1963), and
empirical studies comparing hypnotically trained subjects
with subjects trained in other antenatal techniques, or with
controls (Davidson, 1962; Gross & Posner, 1963; Heron &
Abramson, 1952; Moya & James, 1960; Perchard, 1962).
Patients involved in these studies were usually drawn from a
physician's private practice, and most patients were in
their 20s or older. A few studies involved the use of
hypnosis with teenagers (Coulton, 1966, Pascatto & Mead,
1967).

The late Ralph V. August used hypnosis almost
exclusively in his obstetrical practice, delivering over a
1000 patients using this method. In 1960, August published
a paper that reviewed his personal experience with obstetric
hypnoanesthesia from November, 1957, through December, 1958.
During this interval 445 infants were delivered.
Hypnoanesthesia was attempted in 80% of the cases and was
completely successful as the sole anesthetic agent in 94% of
those attempted. Another 6% supplemented hypnoanesthesia
with chemoanesthesia. Included in this report are a number
of cases of Cesarean section, forceps delivery, episiotomies, and laceration repairs in which hypnoanesthesia was the sole anesthetic agent. August recommended that hypnoanesthesia be used in routine obstetrical practice, and he concluded that though hypnoanesthesia requires more of the obstetrician's time than chemoanesthesia, the elimination of maternal and fetal deaths due to chemoanesthesia makes it a worthwhile time investment (August, 1960).

Callan, like August, delivered about 80% of his maternity cases using hypnosis as a total or partial anesthesia. Callan (1961) published a report comparing the birth outcomes of patients he delivered in 1959 under hypnosis to those he delivered in 1956 before he began using the technique. Benefits for the patients delivering under hypnosis, including a lack of tension, nervousness and irritability, insomnia, constipation, heartburn, gas, nausea, and vomiting, were apparent in almost every case. The average duration of labor was shorter for those delivering under hypnosis and their postpartum course was markedly more positive. There was not one case of postpartum depression.

Callan presented obstetrical hypnosis as valuable to all patients during the pre- and postnatal periods as well as during the course of labor and delivery. Callan concluded, however, that the most satisfactory result of the
use of hypnosis in obstetrics (as far as the attending physician and the hospital staff are concerned) is the way hypnosis patients conduct themselves throughout labor and delivery.

Werner (1960) first began using hypnosis in his obstetrical practice in 1956. Werner's method involved the use of hypnotic techniques primarily to allay fears and anxiety and to teach production of hypnoanalgesia and anesthesia to be used in labor and delivery when patients experienced pain and discomfort. A strong advocate for the use of obstetric hypnoanesthesia, Werner believed that the systematic and controlled study of the use of hypnosis demonstrates that the technique can render childbirth comfortable and less likely to be traumatic to the mother, is superior to the use of chemicals as the primary aid in childbirth, and that the psychological processes involved in the use of hypnosis are of benefit to the mother, the child, and the family as a whole (Werner, 1963).

If it is assumed that an ordinary obstetric delivery requires the use of some agent for relief from pain, it may be asserted that an operative procedure does so to an even greater extent. August (1960) and Callan (1961) both mentioned the inadvertent application of hypnosis in complicated or surgical births as a part of their general practice. Several other physicians publishing in the 1950s
reported remarkable results with the use of hypnosis in complicated birthing procedures.

Kroger and DeLee (1957) reported a case study that is believed to be the first Cesarean section and hysterectomy ever performed with the use of hypnoanesthesia. The entire surgical procedure was accomplished without the use of chemical anesthetic agents of any type. The technique of rehearsal of the intended surgical procedure was used to condition the patient against surprise, fear, and apprehension. There was no pain or evidence of shock during the procedure, the patient left the operating room in excellent condition, and her post-operative course was uneventful in every way.

August (1960) included three case studies of Cesarean section deliveries under total hypnoanesthesia in his text, *Hypnosis in Obstetrics*. The first case was presented as an emergency medical procedure in a situation of rapidly advancing maternal carcinoma where survival of the infant was clearly threatened by the use of chemoanesthesia. Hypnosis was induced with the patient's cooperation just prior to delivery without previous hypnotic training. She received only hypnoanesthesia and forced oxygen inhalation. After delivering an infant weighing 1,361 grams, the mother expired the following morning.

A second case reported by August described a 41-year-old multigravida with a normal obstetric history. On
admission to the hospital it was discovered that she was carrying an exceptionally large fetus which was not descending into the pelvis. An immediate Cesarean section was indicated. Despite no prior conditioning, hypnosis was quickly induced and maintained until all surgical and obstetric procedures had been completed. August performed a Cesarean section delivery of a live infant, did a bilateral (Pomeroy type) partial salpingectomy, lysed multiple pelvic adhesions, and repaired a large ventral hernia, all under hypnoanesthesia. The patient's post-operative course was asymptomatic.

The third case described by August depicts a cooperative effort with a patient with a poor obstetric history, her husband, and her physician. This patient had chronic hypertensive heart disease and multiple uterine fibroids. The maternal and fetal risks together with the likelihood that this would be her last opportunity for delivering a living child were discussed. Cesarean section delivery with hypnoanesthesia was agreed upon and motivation for successful use of the techniques was established early. The operation was performed successfully and the patient's postpartum period was uneventful.

In a similar vein, Fry (1959) and Coulton (1960) published case studies of difficult deliveries under hypnoanesthesia. Fry reported the details of 20 confinements, including a difficult mid-forceps delivery
through a contracted pelvis, and two occiput-posterior presentations, requiring forceps rotation. In all cases, anesthesia or analgesia was successfully induced by hypnosis.

Coulton (1960) published five case histories, one with a breech presentation successfully completed with hypnoanesthesia as the sole agent. Although hypnosis was not deliberately or systematically applied in these cases, Coulton indicated the results were quite positive. His experience as reported in these case studies is similar to the experience of others; hypnosis is a safe and effective method of inducing anesthesia or analgesia in obstetric practice (August, 1960; Callan, 1961; Weinberg, 1963; Werner, 1960; Winklestein, 1958).

In addition to the number of case studies exemplifying the use of hypnoanesthesia in parturition, the obstetric literature of the 1960s was characterized by the publication of a number of empirical studies comparing hypnotically trained subjects with subjects trained in other antenatal techniques, or with controls. In an early study, Heron and Abramson (1952) described a comparison of 100 pregnant women trained in hypnosis with an equivalent sample of untrained pregnant women. The authors indicated that the first stage of labor was reduced by an average of 20% in the hypnosis group. The experimental group also used considerably less medication overall.
Heron and Abramson remarked that use of an average figure does not stress the spectacular success obtained through hypnosis with some patients. The relative success of the hypnotic method was particularly marked with women who were having their first babies, a circumstance which generally means a longer and more difficult first stage of labor compared with later births.

In another study using hypnosis as the only treatment modality compared with controls, Gross and Posner (1963) presented a series of 400 obstetric deliveries. Two hundred of these cases received hypnotic training and 200 did not. The groups were comparable as to maternal age, parity, and socio-economic status. The authors indicated that the hypnotically trained group had a shorter labor and required less analgesia than the controls. There were more spontaneous deliveries in both primiparous and multiparous women trained with hypnosis and a concomitant decrease in operative deliveries.

Moya and James (1960) published an empirical study comparing the use of hypnosis in the delivery of 21 infants with a control group of infants differing only in method of analgesia/anesthesia. Intensive private and small-group instruction in hypnosis was used with the mothers as well as induction at the time of delivery. The clinical condition of the hypnosis group of infants at one minute after birth
was significantly better than the cyclopropane anesthesia group.

An interesting incidental finding in the Moya and James study was that serial determinations of the acid-base status of the infants after birth showed a significantly greater ability of the hypnosis group infants to recover from asphyxia at birth as compared to the non-hypnosis infants including the non-medicated regional anesthesia group. The authors reported a definite superiority of the hypnosis group in establishing effective ventilation. Clinically, the difference between the hypnosis group and the non-medicated group was unexpected. Examination of the cases revealed only that the mothers of the hypnosis group were calm, comfortable, and cooperative with an unusual degree of rapport with and confidence in the physician.

Davidson (1962) used hypnosis to reduce fear and emotional tension during pregnancy. Davidson assessed the effect of mental and physical relaxation on the course of labor with regard to duration of labor and the need for chemical analgesia. She designed a study to compare groups of women trained in autohypnosis, Read's method of natural childbirth, and patients with no special antenatal training. A statistically significant reduction in the duration of the first stage of labor for the autohypnosis group was reported as compared with the other two groups (p<.001).
Davidson found autohypnosis to be an effective analgesic in labor. Fifty-nine percent of the hypnosis group of patients required no chemical analgesia in any stage of labor whereas in the control group 1.4% required no analgesic drugs. In the physiotherapy group, all patients required some chemical analgesia. An additional finding in this study was that subjective measures of having a happy and confident pregnancy and a feeling of pleasure and achievement in labor were much greater for the hypnosis group.

Hypnosis may be helpful in decreasing the occurrence of spontaneous abortion and premature births. Heberer (1922) and Kogerer (1923) of the Heidelberg Clinic, used hypnosis routinely in their obstetrical practice. In an explanation of the procedures, attempts were made to divest hypnosis of all its spectacular and magical aspects, describing it as a normal occurrence and suggesting a safe, full-term delivery. Premature births and low birth weight infants were a rare occurrence and good results were obtained in more than 70% of published cases.

Two recent studies were conducted to examine the usefulness of hypnosis for prevention of prematurity. A recent experimental study was conducted to examine the effects of hypnotic suggestion on the length of gestation of high-risk women. Knudson (1984) studied the use of short-term hypnotic interventions and supportive counseling
techniques with women identified as high-risk for premature delivery. Both treatment groups were found to have significantly longer gestations than the no-treatment controls. There was no significant difference among groups in length of labor, use of anesthetics, or infant birth weights. In a similar study, Omer (1987) described a hypnotic/relaxation technique for the treatment of premature labor. A group of 39 women hospitalized for premature labor were treated with hypnosis and compared with a no-treatment control group of 74 women with the same diagnosis. The hypnotic technique was shown to be effective as an adjunct to the medical treatment of premature labor. Hypnosis may be helpful in decreasing prematurity and a short-term hypnosis program may provide sufficient impact to create change in the birth outcomes of high-risk women.

Hypnosis with Teenagers

Though hypnosis has been used as a psychological intervention on an individual as well as a group basis with various high-risk and normal obstetrical populations, little research has been conducted with teenagers. A review of the literature reveals two studies involving the use of hypnosis with pregnant adolescents.

A case study involving a teenaged mother was reported by Coulton (1966). A 15-year-old primigravida was treated with hypnosis by request from her physician to reduce stress and address emotional difficulties leading to pre-term
labor. Fears concerning the patient's physical capacity to have a baby and emotional issues about the transition to motherhood were addressed and allayed through hypnotic suggestion. A full-term baby was delivered 8 weeks later. Postpartum recovery was uneventful and follow-up revealed a successful adjustment to motherhood.

A group study involving the use of hypnosis with pregnant teenagers was reported by Pascotto and Mead (1967). In a home for unwed mothers hypnotic suggestion was employed to allay the fears and apprehensions associated with delivery. The study was designed to test the hypothesis that posthypnotic suggestion alone, prior to delivery, by someone other than the obstetrician would affect the birthing process favorably. A hypnosis and a no-treatment control group were utilized. Not only was there a reduction in the amount of medication used, but an examination of records and follow-up interviews revealed that the hypnosis patients were less apprehensive and emotional throughout the labor and delivery than the control group.

Pascotto and Mead also reported a striking difference in the amount of oxygen needed by the newborn infants. The length of labor was shorter for the hypnosis group and the postpartum course for the hypnosis mothers was more positive. There was less insomnia, fewer headaches, and an absence of breast discomfort. Pascotto and Mead concluded that hypnosis can be administered by professionals outside
the medical community who are not even present at the time of delivery and still have a positive impact on birth outcomes.

Though more research is needed on the application of obstetrical hypnosis to adolescent populations, it appears that pregnant teenagers can respond to and benefit from hypnotic interventions. Varied medical and psychological benefits including a reduced incidence of prematurity, less need for anesthetics, shorter labors, and a better state of composure in the mother throughout her labor and delivery may result from hypnotic sessions. Posthypnotic suggestion presented in a short-term delivery package by someone other than the obstetrician may be effective in bringing about these desired results.

Advantages to Hypnosis

Kroger (1977) summarized the primary benefits for using hypnosis with obstetric patients as follows:

1. Reduction of chemoanalgesia/anesthesia given to patients with reduction of undesirable postpartum effects due to medication (for mother, fetus, and subsequently, the child).

2. Reduction of fear, tension, and pain, before and during labor with consequent rise in pain threshold.

3. Decreased shock and speedier recovery following delivery with less need for operative procedures.

4. Reduction of the length of labor, therefore increasing resistance to fatigue and minimizing maternal exhaustion.
5. Benefits for the mother with a more positive experience. (p. 229)

Perhaps the most common rationale for the use of hypnosis involves the reduction of the need for chemical anesthetics for the mother during labor. Hypnosis has been shown to be effective as the sole anesthetic agent or to significantly reduce the need for chemoanesthetic agents in a number of studies (August, 1961; Davidson, 1962; Gross & Posner, 1963; Moody, 1960; Mosconi & Starcich, 1975; Rock, Shipley, & Campbell, 1969; Tom, 1960).

Rock et al. (1969) suggested that even with untrained women who have their first encounter with hypnotic techniques during labor, significantly fewer need chemical anesthetic agents during the delivery than their control counterparts. Since less chemical anesthesia/analgesia is needed with hypnotically prepared patients, there is a decrease in the morbidity and mortality rates for mothers as well as infants.

Several additional benefits of hypnoanesthesia over chemical anesthesia can be enumerated. Hypnoanesthesia can be used at any time, induced by the patient, and learned late in pregnancy. There can be no allergic manifestations with hypnosis and once hypnoanesthesia has been obtained, immediate removal of anesthesia and reinduction of it can be achieved when desired. Babies born under hypnosis have higher rates of recovery from the asphyxia of birth and show a definite superiority in establishing and maintaining
effective ventilation (Moya & James, 1960). There is no depression of normally functioning reflexes and compensatory mechanisms for either mother or newborn as seen with the use of general anesthesia. Kroger (1977) noted that while there is always a risk to both mother and infant when chemical anesthetics are used, hypnoanesthesia appears to be 100% safe in comparison.

A number of studies have supported the idea that hypnosis reduces the need for chemoanesthetics by reducing the mother's perceived pain during labor (Cheek & LeCron, 1968; Coulton, 1960, 1966; Kline & Guze, 1955; Malyska & Christenson, 1967; Mellgren, 1966; Oystragh, 1970; Pascutto & Mead, 1967; Perchard, 1962; Werner, 1965). Read (1943) suggested that "a tense mind means a tense cervix" (p. 54), and that tension, anxiety, and pain are associated together in the process of labor. Just as hypnosis has reduced the pain experienced in labor, it has also been shown to be effective in reducing the anxiety and tension experienced prior to and during pregnancy (Abramson & Heron, 1950; DeLee, 1955; Fry, 1959; True, 1954). Greenhill (1960) pointed out that even if complete hypnosis is not to be resorted to, repeated suggestions can accomplish a great deal in labor for the relief of fear as well as the pain of childbirth.

It is generally accepted that hypnotic training for labor and delivery in a majority of mothers results in a
more speedy recovery following delivery with less need for
operative procedures (August, 1960; Davenport-Shack, 1975;
Kroger, 1977; Reynolds, Harris, & Kaiser, 1954; Werner,
1965). Davenport-Shack (1975) noted that hypnotic training
may help create optimal conditions for delivery (and thus
reduce operative techniques) by teaching the expectant
mother how best to behave during labor. It is a common
observation that women who deliver their babies under
complete chemoanesthesia routinely suffer 1 or 2 days of
postpartum depression.

While use of low spinal, epidural, or canal anesthesia
eliminates the problem of postpartum depression to some
extent, it increases the number of forceps deliveries
(Buxton, 1962; Heardman, 1959). Through the use of
posthypnotic suggestions less stormy post-delivery periods
result, and there are fewer complications as the need for
obstetric interference is lessened. There is a decrease in
bleeding, either as a result of psychophysiologic changes or
because of diminished requirements for drugs (Weinberg,
1963).

In situations where operative procedures are
unavoidable, a better psychological preparation of the
patient for surgical manipulation may be created through
suggestion. Post-operatively hypnotic patients are quite
comfortable and require fewer narcotics. There is less
nausea and vomiting, and physiological functions such as
urination and defecation return promptly. Wound healing is more rapid than in other patients and hypnotically prepared patients have a much smoother and shorter convalescence (Fredericks, 1978).

Hypnosis has received significant study as a method of reducing the length of labor. The general findings in several studies (Cheek, 1956; Kroger & DeLee, 1957; Michael, 1952; Winklestein, 1958) were that hypnotically trained patients have an average length of labor 2 hours shorter than women not trained in the technique. Mellgren (1966) reported an overall reduction of labor by 2 to 3 hours, and Davidson (1962) and Gross and Posner (1963) supported a reduced length of Stage I labor in women trained with hypnosis.

It is important to note that while most researchers have reported shorter labors in women using hypnosis, there is no standard way of evaluating when labor begins. If the onset of labor is a self report given by the expectant mother, then women who are in a state of comfort and relaxation may prolong the reported onset of "labor." Werner (1963), in fact, believed that hypnosis may actually prolong the duration of Stage I labor.

Werner (1963) described laboring patients as "in a state of vigil" (p.16), performing usual chores, taking walks, or otherwise entertaining themselves. Werner, Schauble, and Knudson (1982) found that "deliveries in the
hypnotic state are not remarkable for their rapidity, and that well-relaxed patients make better progress in the descent and expulsion of infants in the second stage. These dynamics of labor go with the temperament of the relaxed, fearless, happily expectant patient" (p. 152).

There are obvious benefits for patients who use hypnosis in their labor and delivery. Through hypnosis, the mothers participate in the birth process, resulting in a sense of strength and well-being for them postpartum. This self confidence is especially important in childbirth where major emotional readjustments by patients and their families must be made in a relatively short period of time, exclusive of labor and delivery.

Uniformly positive results of hypnosis during labor have been related to positive attitudes expressed by these women. Such patients have been described as more relaxed, experiencing less postpartum exhaustion, and generally feeling surprisingly well in comparison to women not having used hypnosis (DeLee & Duncan, 1956; Kroger & DeLee, 1957; Pascatto & Mead, 1967; Werner, 1959). An increase in maternal bonding has been reported with patients using hypnoanesthesia with consequent positive effects on their families (Malyska & Christenson, 1967).

Adolescent Pregnancy

Much attention has been given to the topic of adolescent pregnancy, its causes, prevention and outcomes,
by social and medical scientists in the last 20 years. Extensive reviews of this literature have been published and presented elsewhere (Magrab & Danielson-Murphy, 1975; Phipps-Yonas, 1980; Weigley, 1975). Research efforts in this area have had a positive impact on the fetal, perinatal, and maternal mortality rates among teenagers. It is clear that quality prenatal and nutritional services are important, yet many of the complications associated with teenage pregnancy continue to go unexplained by traditional medical models (Braen & Forbush, 1975).

An increasing number of contemporary researchers have focused on the role of non-medical factors in the process of childbearing and in various pathological obstetric conditions. The publication of these studies has paralleled the development of a holistic approach to medicine and a psychophysiological explanation of disease.

Psychological factors, including anxiety, life stress, and the presence or absence of social support may play a significant role in the onset of difficulties in labor and delivery and in birth complications (Coppen, 1958; Drillien, 1957; Hetzel, Bruer, & Poidevin, 1961; McDonald & Christokos, 1963; McDonald, Gunther, & Christakos, 1963; Norbeck & Tilden, 1983; Nuckolls, Cassell, & Kaplan, 1972).

While the majority of studies and reports on emotional and environmental influences on pregnancy have been focused
on women in the childbearing years (ages 15-44), a few have focused specifically on teenagers. It appears that answers to the problem of prematurity and other labor and delivery complications prevalent among teenagers may be found in the realm of psychosocial factors.

Psychological and Stress Factors

Teenage pregnancy has been characterized as a maturational crisis that is especially compounded for young women who have yet to resolve their identities (Martin, 1973). When the crisis of pregnancy is added to the emotional upheaval of adolescence, stress and anxiety are obviously compounded. The pregnant adolescent must at once deal with the developmental tasks of adolescence, the struggle to be an adult, and the physical stress of pregnancy.

Adolescents may express great ambivalence toward their pregnancies. This may result in part from what Schaffer and Pine (1972) described as the teenagers' conflict regarding being nurtured versus being a mother. Within a relatively short period of time they must change their role from irresponsible adolescents to responsible parents. The physiological manifestation of this role transition is labor and delivery, and it is here that adolescent mothers are likely to have difficulty (Peterson, 1981).

The theme of maturational crisis in the experience of pregnant teenagers pervades much of the literature and has
received considerable support from various writers. The work of Dougherty (1978), Bryan-Logan and Dancy (1974), and Smith (1975) has supported the view that teenage pregnancy is a time of transition, not only for the teenagers, but for their whole families, especially their mothers, and one that at least temporarily unbalances the power structure and stability of the family. In pregnancy girls are simultaneously separated from their former status and drawn into knowledge and behavior reserved for adults. It is a rite of passage, a major life event, for which teenage mothers are frequently unprepared (Dougherty, 1978).

There are of course individual differences in the psychological meaning of a pregnancy for each girl. Childbearing is viewed by some young women as a source of self-esteem (Kane & Lachenbruch, 1973). Nevertheless, Klaus (1972) found that while many adolescents initially viewed childbearing as a means of getting attention and making themselves feel "grown-up" and important, they felt consistently more alone, frightened, helpless, and angry as pregnancy progressed.

Notman (1965) stated that unmarried adolescent mothers tend to deny or reject the reality of their pregnancies for a longer time than other unmarried mothers. Adolescents, as a group seem less concerned about planning for the future of the baby, more concerned with their own bodily changes, and more rejecting of the pregnancy.
In a retrospective psychiatric study of mothers of premature infants, Blau, Welkowitz, and Cohen (1964) found the mother's attitude toward the pregnancy influenced the course of the pregnancy. Mothers of premature infants had more feelings of rejection toward the pregnancy, anxiety, and ambivalence or negative feeling regarding the health of the fetus and the coming baby. Subjects in the study were not necessarily adolescent, but were viewed as being emotionally unstable, narcissistic, immature, young, uncertain about their feminine identity and development, and harboring uncertainties over their maternal state.

A number of authors studying mature subjects have reported associations between life stress and poor pregnancy outcome. Dodge (1972) found a significantly higher incidence of life stress during the last trimester of pregnant women having difficulties in labor and giving birth to infants with serious medical problems. Stressful life events have been associated with spontaneous abortion (Berle & Javert, 1954), pre-eclamptic toxemia (Coppen, 1958) premature birth (Drillien, 1957), and prolonged vomiting (Hetzel, Bruer, & Poidevin, 1961).

Hetzel, Bruer, and Poidevin (1961) conducted an experimental study and found a significantly higher incidence of stressful life situations in primiparous patients with complicated pregnancies compared with patients with normal pregnancies. There was evidence of rejection of
the pregnancy in patients with toxemia and prolonged labor and an increased incidence of operative procedures for delivery in this group. Hetzel et al. stated that the effect of stressful life situations can be prevented or lessened considerably by medical staff and emphasized the importance of counseling in prenatal care.

In a more recent study, Gorsuch and Key (1974) examined the relationship between problem pregnancies and life change (stress) events prior to and during pregnancy. Stressful events or significant life change appeared to have an impact on pregnancy. Stressful events included life change situations such as major personal injury or illness, death of spouse, marriage, and in-law troubles. In the same study, Gorsuch and Key noted that state anxiety, especially that related to the pregnancy, appeared to have the most deleterious effect on pregnancy outcome. Kroger (1977) suggested that stress may be related to spontaneous abortion by causing uterine contractions thus causing premature separation of the placenta. Similarly, Schwartz (1977) reported that prematurity and low birth weight were related to maternal stress and anxiety during pregnancy.

Uhlenhuth and his associates (1974) examined the relationship between life stress symptoms intensity and demographic variables. They found that higher stress and higher symptom intensity occurred among unmarried, youthful, and lower class individuals, three characteristics typical
of teenage pregnancy profiles. Consistent with these findings is the indication that social class and prematurity are related (Abramowicz & Kass, 1966; Creasy, Gummer, & Liggins, 1980; Niswander & Gordon, 1972). Zax, Sameroff, and Babigian (1977) found that prematurity rates were highest among the lower class, most of which are black, under 20 with low levels of education, high rates of illegitimacy, and little or no prenatal care.

While more complicated or high-risk pregnancies exist among lower socio-economic status (SES) women, high-risk status is not simply a socio-economic condition (Douglas, 1950). Premature deliveries and complications in labor are consistently found in all socio-economic strata (Rider, Taback, & Knoblock, 1955). Pierog, Laverg, and Faison (1970) as well as Douglas (1950) have suggested that psychological and emotional factors rather than social status differences are more important in determining pregnancy outcomes.

**Social Support Factors**

In addition to the psychological and stress factors that may, in part, determine the outcome of pregnancy, social support may also play a role. In a pioneering study, Nuckolls and colleagues (1972) investigated the relationship between life stress, psychosocial assets (social support), and medical complications during pregnancy. Psychosocial assets were defined as any psychological or social factors...
which contribute to women's ability to adapt to their first pregnancies. When no recent stressful life events had been experienced, the level of assets made no difference in pregnancy outcome. However, when significant stressful events were noted, those women with insufficient assets tended to experience birth complications, while those with strong assets did not. Nuckolls et al. postulated that in the absence of social support, life stress is more likely to effect physical health. Social support appears to have a buffering effect on stressful life experiences.

In a study closely resembling that of Nuckolls et al., Norbeck and Tilden (1983) examined the relationship of life stress, social support, and emotional disequilibrium to complications of pregnancy. Both emotional and tangible support were evaluated. The investigators reported a significant interaction of life stress and social support, a finding consistent with the literature. This study provides evidence for significant relationships between psychosocial variables and complications in pregnancy and supports the buffering effect of social support.

**Psychological Interventions in Obstetrics**

The implication of social support research is that by reducing the life stress of pregnant adolescents, or by increasing their psychological assets, complications in labor and delivery can be reduced. Psychological interventions also may be useful in helping adolescent
mothers prepare for a natural or low anesthesia delivery which is much better for their infants than chemical anesthesia (Schwartz & Schwartz, 1977). In a study on prematurity, Cavenaugh and Talisman (1969) noted that the mothers of premature infants are usually the least prepared psychologically antepartum for a low-anesthesia delivery which is vital to these infants' well-being.

Mehl and Peterson (1981) presented an existential approach to prenatal risk screening and reported a number of case studies involving the application of psychological interventions with high-risk women. They concluded that the practice of brief or long-term psychotherapy when indicated contributes significantly towards uncomplicated birth.

Blau and colleagues (1963) supported the hypothesis that maternal attitude toward the pregnancy influenced the pregnancy outcome. They studied the extensive emotional problems prevalent among mothers of premature infants and women with obstetrical complications, and advocated the use of mental supportive therapy to circumvent psychogenic obstetrical complications.

Mann (1956, 1957) studied women prone to spontaneous abortion and concluded that underlying emotional states contribute significantly to this condition. Mann offered supportive care and psychotherapy to his patients early in pregnancy and substantially decreased the rate of miscarriage. Much of the counseling focused on resolving
guilt feelings about the current pregnancy or a previous pregnancy lost through miscarriage. The eight women in Mann's study who did not carry to term had withdrawn from treatment after experiencing movement of the fetus and became unresponsive to supportive measures.

Peterson (1981) advocated the use of psychotherapeutic interventions as a routine part of prenatal care. In this model, childbirth is presented as an opportunity for personal growth and a time to work through limiting beliefs ("I am too small, I am too young to birth my baby") which affect the labor process.

Unresolved, unrecognized conflicts can be noticed in pregnancy and psychological interventions can be initiated to help spur the development of the pregnancy to its final healthful stage of uncomplicated birth. Where existing conflict is not recognized or worked through either in pregnancy or labor itself, complications may show themselves in labor necessitating medical intervention of some kind. (p. 21)

In an earlier article, Peterson and Mehl (1978) reported that the ability to include the psychological as well as the medical in labor assistance improved the possibility of normal outcome for birth and facilitated maternal attachment.

Kubie (1953) spoke of the psychosomatics of educated childbirth and emphasized that education is not enough. Pregnant women need an environment in which to work out the fears that may be brought out or surface during educational programs. Kubie noted that psychotherapy approaches provide
this environment and allow women to deal with neurotic or irrational anxiety and beliefs.

A similar view is presented by Cheek and LeCron (1968). They emphasized that fear of delivery is no longer socially acceptable in this age of educated childbirth, antiseptic conditions, and lessened maternal and infant mortality. Thus, underlying fears are no longer discussed but may surface through psychic or physiological disturbances. The literature on the use of hypnosis in obstetrics refers to hypnosis as a psychological asset to the mother as well as an effective technique in reducing the need for anesthesia and reducing anxiety (Buxton, 1957; DeLee, 1955; Knudson, 1984; Kroger & DeLee, 1957; Werner, 1959). This asset may help to balance the emotional stress experienced by adolescents in adjusting to their pregnancy and thus influence birth outcomes.

There is some indication that hypnotic interventions during pregnancy may have positive implications for other life processes (Knudson, 1984; Peterson, 1981). Teenagers who receive psychological interventions as a part of the prenatal package have been known to have better postpartum return rates than teenagers who do not (Grimm, 1983). They have also been shown to use contraceptives more reliably after the birth of their child (Aries & Klerman, 1981). Whether through the asset-building approaches of supportive counseling, the reduction of anxiety and tension through
hypnotic approaches, or the reduction of stress from rational or irrational fears through a combination of psychological methods, there appears to be a need for further study of these approaches in preventative medicine in obstetrics.

Childbirth Education

Over the past decade the number of expectant mothers who participate in a class on childbirth education has drastically increased (Bernardini, Maloni, & Stegman, 1983). This movement was started by the consumer and only recently has received the support of a large number of health-care professionals primarily in the private sector. The subject matter of classes usually includes the physical and emotional aspects of pregnancy, labor and delivery procedures including pain management skills, infant feeding and care, and the practicalities of life with a newborn.

There are three methods of teaching childbirth education currently in use in obstetrical practice: hypnosis, which was used historically and is now being revived; "The Natural Childbirth" methods of Grantly Dick Read (Heardman, 1948, 1959; Read, 1933, 1943, 1953); and the psychoprophylactic methods of Platonov, popularized and introduced to the United States by Ferdinand Lamaze (Chertok, 1959; Lamaze, 1958; Platonov, 1955). The goal of all methods is to offer information on the process of pregnancy, labor, and delivery, and to reduce, eliminate, or
prevent pain. The psychological component of pain is suggested and psychological methods for its reduction are presented. The methods vary somewhat in philosophical approach and theoretical make-up, yet their commonalities in terms of outcome show very little difference (Davenport-Shack, 1975).

The cornerstone of all methods is relaxation and controlled breathing. All methods utilize suggestion to build confidence and provide the woman with reassurance about her capacity to be in control and manage her labor. Active participation in the childbirth is encouraged. All methods are positive and beneficial to the women using them.

Most of the early research done on the benefits of prepared childbirth was focused on obstetrical gains. In 1965, Ulin and Yahia suggested that prenatal education led to shorter labors; however, in 1972, Reid et al. presented contradictory evidence. Scott and Rose (1976) studied the effect of childbirth education on primiparas in labor. A matched sample of 129 women were chosen to participate. All of these women were attended by private physicians. Those who were prepared had less narcotics, less anesthesia, and an increased number of normal, spontaneous vaginal deliveries. Length of labor, incidence of maternal complications, and neonatal problems were not influenced by class attendance.
Recently, there has been more emphasis on the emotional aspects of prepared childbirth. Lapidus (1968) found that women who participated in prepared childbirth classes had a higher sense of control over their bodies than the control group. Willmuth (1975) found that a satisfactory delivery experience was closely associated with the perception of maintaining control.

Goodwin (1970) studied self-esteem in both women and their husbands and found a significant difference postpartum between those who attended prepared childbirth classes and those who had not attended classes. Nunnally and Aquiar (1974) reported similar findings in a clinic population. However, their study included only subjects married and living with spouses. The subjects who attended classes reported a positive attitude toward the knowledge they gained, less discomfort, and that they felt better about themselves.

There is good support in the research literature that active participation in childbirth education is related to increases in self-esteem in women and that women taking prepared childbirth classes rate their childbirth experiences more positively than nonclass attenders. Although the evidence is strong that women benefit from childbirth education classes, this aspect of prenatal care is frequently not included in publicly-funded clinics. To date, most of the research and class experience has been in
the private sector. It is important to extend both to the publicly-funded sector, especially to teenagers.

Humenick (1982) advised that some changes may need to be made in the format of the education process to reach indigent or low-income populations. Working within a clinic setting may necessitate a reduction in the number of classes, less emphasis on partner participation, and flexibility in class format.

In reference to clinic populations, Auerbach (1968) stated that the unmarried mother can benefit from an educational class if it is designed to meet specific needs. Copeland (1979) attempted to identify subject matter that the unwed 15-19-year-old patients felt should be included in prenatal classes. Adolescent mothers tended to select self-oriented topics for prenatal classes. The importance of understanding bodily changes and labor and delivery processes were rated as the most important topics to be covered.

It appears that education for childbearing may have positive emotional effects for the mother who attends classes and that the implementation of childbirth education classes within a clinic setting is a new frontier deserving attention from researchers. Some changes in presentation and format may be necessary to reach this population and to meet the patient-flow requirements of clinics. Adolescents attending publicly-funded clinics can be most easily reached
by offering information on the process of pregnancy, labor, and delivery.

**Summary**

Hypnosis has been used in obstetrics for more than a century. After the development of inhalation anesthesia interest in the use of hypnosis to control pain during labor fell out of general use but is currently being revived. The literature of the 1950s and 1960s appears to offer hypnosis as an effective and appropriate adjunct to obstetrical practice, and the American Medical Association has recognized the potential benefits to obstetrical patients. Hypnosis has been researched with various high-risk and normal obstetrical populations with positive results, but little research has been conducted with adolescents. Advantages to the use of hypnosis include a reduction of chemoanesthesia, reduction of the length of labor, and reduction of fear and anxiety creating a more positive experience for the mother. Hypnosis has also been shown to be effective in reducing prematurity and complications in labor and delivery.

Research efforts on the problems of teenage pregnancy have focused on the medical outcomes of adolescent births and have largely neglected the impact of psychosocial factors on the process of labor and delivery with these young mothers. Recent research with mature populations has indicated that psychological factors including anxiety, life
stress, and the presence or absence of social support may play a significant role in the onset of difficulties in the birthing process. It appears that by reducing the life stress and affect of "maturational crisis" of pregnant adolescents, and by increasing their psychological assets, complications in labor and delivery and their negative outcomes may be reduced.

There is good support in the research literature that active participation in childbirth education classes has positive effects on class participants. The three major ingredients of educational programs include an explanation of the mechanics of childbirth, relaxation to reduce stress and anxiety, and breathing techniques to reduce the experience of pain and the need for chemical anesthesia. Three methods of childbirth education currently used in obstetrics include hypnosis, Natural Childbirth, and Lamaze.

Until recently childbirth education and psychological methods of reducing pain in childbirth have been largely limited to the private sector. Adjustments in the traditional format of childbirth classes including a fewer number of sessions and less emphasis on partner participation would make this important aspect of prenatal care more accessible to clinic and specifically adolescent populations. Hypnotic techniques of teaching childbirth education and reducing pain during delivery may be particularly applicable to pregnant adolescents. A minimal
number of hypnotic sessions can be initiated late in pregnancy without necessitating participation of the baby's father and psychological and social support aspects of pregnancy can be addressed through this method with special attention to the needs of young mothers.
CHAPTER THREE
METHODOLOGY

The purpose of this study was to examine the effects of focused relaxation and imagery and supportive counseling techniques on the labor processes and birth outcomes of pregnant adolescents. An experimental, post-test only design was used with the expectant mothers. The dependent variables were cervical dilatation at admission to the hospital, length of labor, amount of anesthesia used during labor and delivery, and infant birth weights. Data gathered from medical records were the basis from which treatment effects were determined.

Three groups of pregnant teenagers were identified: an experimental group including teenagers receiving instruction in focused relaxation and imagery, a supportive counseling group with the teenagers receiving supportive counseling in lieu of relaxation and imagery training, and a control group receiving no specialized counseling services. This chapter contains the hypotheses, design of the study, population and sample, procedures, treatment, instrumentation, analysis of the data, and limitations of the study.

Hypotheses

The hypotheses for this study were as follows:

H₀₁: There are no differences in the amount of cervical dilatation at admission to the hospital of pregnant
adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

$H_0^2$: There are no differences in the length of labor of pregnant adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

$H_0^3$: There are no differences in the use of anesthetic/analgesic agents during the delivery of infants born to adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

$H_0^4$: There are no differences in the birth weights of infants born to adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

The .05 level of significance was set as the minimum for rejection of a null hypothesis.

**Design of the Study**

An experimental, post-test only design was used in this study. There were three different treatments: a group receiving hypnotic interventions in a supportive format, a group receiving only supportive interactions designed to control for social support, and a no-treatment control group.

**Population and Sample**

The population for this study included expectant mothers, 18 years of age or younger at the time of conception who were patients at the prenatal clinic of the Alachua County Public Health Unit in Gainesville, Florida.
The population consisted solely of lower socio-economic status (SES) patients as determined by eligibility for care at the Public Health Unit. Many of the patients received Medicaid, federal funds, or various financial grants.

The sample for this study consisted of all new teenage patients with normal pregnancies who were 18 years old or under at conception, who entered prenatal treatment at the Alachua County Public Health Unit before the end of their 24th week of pregnancy, and who were not involved in other educational or social support providing programs. Teenagers who met the criteria of the study and agreed to participate were randomly assigned to either the hypnosis group or the supportive counseling group. Previously registered teenage patients with medically normal pregnancies, who met the criteria of the study were identified through their medical records and assigned to a retrospective control group. These teenagers received no specialized training.

All subjects assigned to the hypnosis or supportive counseling groups talked with a staff member concerning the study before any treatment was administered. Each subject signed an informed consent statement (Appendix A). Two experimental groups and one control group were formed. Random assignment to the two experimental groups was used to limit the effects of age, parity, and marital status on outcome variables. A homogeneous SES sample was used to limit the effects of race on outcome variables. The supportive counseling group was established to control for
non-specific factors related to social support. Data gathered from medical records were the basis from which treatment effects were determined.

The study initially included 76 teenagers. Twenty-four of the 76 subjects were assigned to the retrospective control group. Five of the remaining 52 subjects chose not to participate, leaving 47 selected to receive the experimental treatments. The 47 subjects were randomly assigned to one of the two treatment groups. Eleven percent of the potential experimental subjects did not complete the requirements of the study, leaving a total of 42 teenagers who completed the research protocol. Twenty-two were in the hypnosis group and 20 were in the supportive counseling group. There were 24 in the control group, making the total number of subjects who completed the study 66. The non-completion of study rate for the supportive counseling group was 13% (3 of 23). The non-completion of study rate for the hypnosis group was 8% (2 of 24).

Demographic information revealed that the mean age for subjects was 16.7 years. Subjects ranged from 14 through 18 years of age. Table 1 provides descriptive statistics for the sample by age. Fifty-eight percent of the sample was black and 42% was white. There were no other racial or ethnic backgrounds represented in the sample. The racial difference among the groups was not significant (p < .05). These findings are presented in Table 2.
Table 1
Sample Size and Descriptive Statistics by Age

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Hypnosis</th>
<th>Supportive Counseling</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>22</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Mean</td>
<td>16.7</td>
<td>16.9</td>
<td>16.5</td>
</tr>
<tr>
<td>Minimum</td>
<td>15.0</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>18.0</td>
<td>18.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Range</td>
<td>3.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Table 2
Chi-Square Analysis of Race by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Black</th>
<th>White</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>12</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>18.18</td>
<td>15.15</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>54.55</td>
<td>45.45</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>31.58</td>
<td>35.71</td>
<td></td>
</tr>
<tr>
<td>Supportive Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>14</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>21.21</td>
<td>9.09</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>70.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>36.84</td>
<td>21.43</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>18.18</td>
<td>18.18</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>50.00</td>
<td>50.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>31.58</td>
<td>42.86</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>28</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>57.58</td>
<td>42.42</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 1.91 (DF = 2, p = 0.38)
Cramer's V = 0.17
Other characteristics describing the sample were those of relationship status, degree of education, and parity. The sample was composed primarily of single young women (n=66). Only 15 reported that they were currently married. In addition 2 reported their relationship status as divorced or separated. The difference among the groups was not significant. Descriptive statistics for relationship status are presented in Table 3.

Table 3

Chi-Square Analysis of Relationship Status by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Single</th>
<th>Married</th>
<th>Divorced or Separated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypnosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>17</td>
<td>4</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>25.76</td>
<td>6.06</td>
<td>1.52</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>77.27</td>
<td>18.18</td>
<td>4.55</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>34.69</td>
<td>26.67</td>
<td>50.00</td>
<td></td>
</tr>
<tr>
<td><strong>Supportive Counseling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>24.24</td>
<td>6.06</td>
<td>0.00</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>80.00</td>
<td>20.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>32.65</td>
<td>26.67</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>16</td>
<td>7</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>24.24</td>
<td>10.61</td>
<td>1.52</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>66.67</td>
<td>29.17</td>
<td>4.17</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>32.65</td>
<td>46.67</td>
<td>50.00</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>49</td>
<td>15</td>
<td>2</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>74.24</td>
<td>22.73</td>
<td>3.03</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 1.88 (DF = 4, p = 0.75)
Cramer's V = 0.11
In terms of education, the sample mean for the number of years of education completed was 10.3. Years of education ranged from 7 through 12. Only 24% of the subjects had completed a high school education. Another 23% had just one year of high school to complete. Descriptive statistics for the groups by years of education are presented in Table 4.

Table 4
Sample Size and Descriptive Statistics By Years of Education

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Hypnosis</th>
<th>Supportive Counseling</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>22</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Mean</td>
<td>10.31</td>
<td>10.50</td>
<td>9.87</td>
</tr>
<tr>
<td>Minimum</td>
<td>7.00</td>
<td>8.00</td>
<td>8.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>12.00</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Range</td>
<td>4.00</td>
<td>4.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Descriptive statistics for parity are presented in Table 5. A total of 58% of the sample were primigravidas. Thirty percent of the sample had previously experienced labor and delivery through the birth of a premature or full-term infant. Within the sample, the mean number of previous term deliveries was .23, with a range of 0 through 1; the mean number of premature births was .07, with a range of 0 through 1; the mean number of abortions was .18, with a range of 0 through 3; and the mean number of living children was .27, with a range of 0 through 1.
Table 5

**Descriptive Statistics for Parity**

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Hypnosis</th>
<th>Supportive Counseling</th>
<th>Control</th>
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</thead>
<tbody>
<tr>
<td>Term Deliveries</td>
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<td></td>
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<tr>
<td>Mean</td>
<td>.27</td>
<td>.25</td>
<td>.16</td>
</tr>
<tr>
<td>Minimum</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Premature Deliveries</td>
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<tr>
<td>Mean</td>
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<td>.05</td>
<td>.12</td>
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<tr>
<td>Minimum</td>
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<td>0.0</td>
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<tr>
<td>Maximum</td>
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<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Abortions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>.14</td>
<td>.15</td>
<td>.25</td>
</tr>
<tr>
<td>Minimum</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.0</td>
<td>1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Living Children</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Mean</td>
<td>.32</td>
<td>.35</td>
<td>.17</td>
</tr>
<tr>
<td>Minimum</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Procedures**

Each participant included in the study was diagnosed by physicians as experiencing a medically normal pregnancy. All subjects were seen by the same medical staff, followed by the same nurse practitioners and delivered at Shands Teaching Hospital under the same medical protocol. Excluded from this study were all subjects with medically high-risk conditions (e.g., diabetes, heart or renal problems, high blood pressure, or eclampsia) as determined by physicians and all teenagers involved in other counseling or multidisciplinary programs.
After the initial screening, those teenagers eligible for this study met with a researcher to discuss their possible involvement in the research. The groups were presented as an aspect of prenatal care routinely offered by the clinic. Patients read or were read the informed consent form. Any questions were answered at that time. Patients signing the form were advised of the type of treatment they would receive and were followed by medical staff throughout their pregnancy regardless of which condition they were assigned. Subjects were assured by the interviewer during the initial screening session that all information would remain confidential and that the data would be used only for the purposes of this research.

All subjects assigned to a treatment group talked with a staff member concerning the study before any treatment was administered. Those teenagers assigned to a treatment condition began seeing the researcher/counselor during clinic visits when their gestation fell between 20 and 24 weeks (beginning of the third trimester of pregnancy). Generally, these young women were scheduled for clinic visits every other week making the time span of the 4-session experimental conditions approximately 8 weeks.

A 4-session treatment schedule was selected for a number of reasons. A precedent for short courses on childbirth education has been established by "Lamaze" and "Natural Childbirth" classes in various obstetrical settings. These classes usually meet a maximum of six times
in the last weeks of pregnancy. Previous research on the use of hypnosis in obstetrics has established that a limited number of hypnotic sessions can impact pregnancy outcomes with four being the number most frequently cited (Beaudet, 1963; Cheek & LeCron, 1968; Davidson, 1962; Gross & Posner, 1963; Kroger, 1959; Zuspan, 1960). Teenagers frequently enter the medical setting for prenatal care late in pregnancy and exhibit a high incidence of "no-shows" for clinic appointments, thereby limiting their availability for treatment interventions. Finally, four sessions were chosen to make a significant change in medical outcome with a minimum of interference in the traditional medical prenatal care model. If this "non-traditional" form of counseling intervention is to be accepted by the medical community, it must be minimally disruptive and cost-effective in terms of time investment.

Counselors for the hypnosis condition met the following requirements:

1. They were mental health professionals or doctoral students in programs in counselor education.
2. They had prior documented training in hypnosis/relaxation work, supervised and approved by the American Association for Clinical Hypnosis.
3. They were familiar with the literature on hypnosis and obstetrics.
4. They were familiar with the mechanics of childbirth.
Consultation and supervision for this experimental condition were provided by William B. F. Werner, M.D., obstetrician (retired); Dr. Paul Schauble, Professor of Psychology and Training Director at the University Counseling Center, University of Florida; and Dr. Molly Doughtery, Professor at the College of Nursing, University of Florida. Provisions for data collection were made through Charles Mahan, M.D., of the Department of Obstetrics and Gynecology, University of Florida, and permission for and endorsement of the study were made through Caroline S. Rains, M.D., Medical Executive Director for the Alachua County Public Health Unit, Gainesville, Florida.

Teenagers assigned to the supportive counseling group received supportive interactions with an identified nurse midwifery student in lieu of hypnotic sessions. Subjects in the supportive counseling group participated in four treatment sessions thus receiving quantitatively equivalent attention during clinic visits as teenagers in the hypnosis group.

Treatment

Hypnosis Group

A 4-session sequence of standardized hypnotic treatments was offered to the young women in the hypnosis group. These teenagers learned the methods and benefits of focused relaxation and imagery to increase the likelihood of a safe, relatively pain-free delivery. Sessions provided multiple opportunities to experience and practice a hypnotic
induction and the deep relaxation possible through this method. Suggestions directed toward the teenagers during the hypnotic state focused on the conceptualization of pregnancy and the mechanics of childbirth as a healthy, natural process.

All teenagers received the same suggestions and inductions which followed a specified format. Inductions included ego-strengthening techniques and suggestions for a relatively pain-free delivery. Suggestions were made for the application of the hypnotic techniques learned during pregnancy and delivery to other stressful or exciting periods in their lives. The sessions occurred in a progressive sequence. They were standardized and consistent. A text of the induction procedure is included in Appendix B.

Session One. Session One contained an introduction to focused relaxation and imagery; an explanation of the pregnancy process, including the birth experience and typical medical procedures; and an opportunity to begin personally to learn and experience an induction for relaxation. The counselor demonstrated hypnotic behavior by placing herself briefly in the hypnotic state. The subjects had an opportunity to ask questions concerning the technique, to practice the technique, and to hear a childbirth preparation presentation while in the hypnotic state. This presentation included educational material and suggestions for labor and delivery to progress in a healthy and
satisfying way. The suggestion was made that if they would like to practice this technique between sessions, it would be beneficial to them, their pregnancies, and their babies.

**Session Two.** Session Two consisted of an opportunity for continued practice of the auto-hypnotic process in order to learn it more fully and develop its benefits. The same induction procedure as presented in Session One minus the mechanics of childbirth was utilized and fractionation was employed to abbreviate the induction procedure into a shorter, more effective package. The induction procedure incorporated the following new suggestions which were offered while the subject was experiencing the trance state:

1. You're looking forward to an easy, comfortable labor, having only as much pain as you need to remind you to relax.

2. The more relaxed you become now, the more you know that you will need less anesthesia during your delivery than you had expected.

3. You can feel good about what you're doing now, because you know that as you learn to relax you can enjoy your pregnancy, delivery, and child more.

4. You're looking forward to having a happy, healthy child. Pregnancy is a time to become as healthy as possible and the healthier you are, the healthier your child will be, and the healthier your child becomes, the better you feel.

Each subject was presented with an opportunity to ask and have answered any questions of concern to her concerning her pregnancy or the use of the technique.

**Session Three.** Session Three consisted of a repetition of the shortened induction and the practice of autohypnosis. Specific suggestions for Session Three included
1. You're looking forward to your expected delivery date, because you know that within a few days of that time will be when you will deliver the happiest, healthiest child you can.

2. Now that you have learned how to relax you can experience relaxation anytime you want, during your pregnancy, delivery, and future life.

3. You're feeling relaxed and confident about your labor and delivery, knowing you have the resources you need.

4. You're looking forward to a continued, pleasant, and comfortable pregnancy. The more you enjoy this pregnancy the happier and healthier you and your child will be.

The suggestions were presented to the subjects while in the trance state. An opportunity was given to each subject to ask questions concerning the technique, or the process of pregnancy after the induction.

**Session Four.** Again, the shortened induction procedure was used, and subjects practiced autohypnosis. Specific suggestions for Session Four included

1. You're feeling more relaxed, calmer, more patient as every day goes by, knowing that you, your body, and your child know the right time to begin the labor process.

2. The nearer you come to your expected delivery date, the better you will look and feel, knowing you will deliver a happy, healthy child.

3. As you approach your expected delivery date you know you are entitled to all the joy that having a baby can bring.

4. As you approach your expected delivery date you're feeling more and more calm, with a greater feeling of personal well-being, a greater feeling of safety and security with each day that goes by.

All suggestions were offered while the subjects were in the hypnotic state. After the induction subjects were given an opportunity to ask questions.
Supportive Counseling Group

The interactions between the teenagers and the nurse midwifery student were geared toward supportive counseling, with the goals of providing information on pregnancy and delivery and offering a comfortable relaxed atmosphere in which the personal concerns of the pregnant teenager were attended to during her clinic visit. Each session provided an opportunity for answering any questions the patient may ask, as well as eliciting questions and offering information concerning specific issues.

Session One. Session One included an explanation of the process of labor and delivery and a discussion of what contractions are like. Information on the effects of drugs, alcohol, and tobacco were included in this initial session. Each subject was given an opportunity to discuss any ambivalence she may have about pregnancy or fear she may have about labor and delivery. Feelings about their pregnancy, their family members, their family situation (including financial), their feelings and concerns about the expected child were elicited. Emphasis was placed on the importance of prenatal care and nutrition.

Session Two. Session Two contained a review of the information on labor and delivery and an explanation of the procedures for episiotomy and Caesarean section. Subjects were informed about the appearance of a newborn baby, the color of the skin or presence of vernix, and the importance of infant stimulation after birth. Specific medical issues
related to when labor begins, when to come to the hospital, and what procedures may be used were discussed. Subjects were encouraged to ask questions and express feelings regarding issues of medical or personal concern.

Session Three. Session Three was focused on the signs and symptoms of labor and the timing of contractions. Issues concerning when to go to the hospital, what to take to the hospital, and the presence of the father or significant others at the delivery were discussed. The advantages and disadvantages of bottle and breast feeding were presented. Subjects were encouraged to discuss information they had received from friends or family members about the process of labor. Subjects had an opportunity to ask questions or express personal concerns about the forthcoming delivery.

Session Four. Session Four contained a review of the signs and symptoms of labor and the timing of contractions. The process of labor and delivery was reviewed, and subjects were encouraged to ask questions about any material covered in the sessions. Conversations were elicited with subjects concerning their immediate and future plans, including the use of contraceptives. The importance of the postpartum check-up was emphasized. Subjects had an opportunity to discuss personal concerns or fears related to the birthing process.
Control Group

Pregnant teenagers in this group were not offered any specialized treatment or procedures as part of this research project. They received all typical and appropriate treatment offered by the clinic including medical follow-up by a nurse practitioner.

Instrumentation

Data gathered from medical records were used to evaluate the dependent variables. After delivery, subjects' medical records were retrieved from Shands Teaching Hospital Department of Medical Records and variables evaluated in the Research and Physician's Library provided for that purpose. Data on each subject were recorded on the data collection form (Appendix C). Specific data on each subject included cervical dilatation at admission to the hospital, length of labor, amount and type of anesthesia, and infant birth weights. Additional data concerning complications during labor and delivery, surgical procedures, and postpartum medications were noted as well as any information concerning social or medical history which was clinically relevant. Consultation with medical staff and delivery room personnel confirmed that data concerning these variables were routinely recorded on standardized forms available in patient's medical records.

The importance of length of labor, infant birth weights, and amount of anesthesia as critical factors in determining pregnancy outcomes has long been recognized in
obstetrical research (Anderson & Lyon, 1939; Creasy, Gummer, & Liggins, 1980; Schwartz & Schwartz, 1977). In working with teenagers, Smith, Wait, Mumford, Nenny, and Hollins (1978), have indicated the relevance of dilatation on entrance to the hospital as a predictor of medical intervention in the labor process and as an indicator of positive pregnancy outcomes.

Data Analyses

Differences among adolescents involved in the hypnosis group, supportive counseling group, and the control group were examined in terms of pregnancy outcome measures. Because the dependent variables of cervical dilatation at admission to the hospital, perceived length of labor, amount of anesthesia, and infant birth weights are assumed to be interrelated to some degree, a multivariate analysis of variance (MANOVA) was the statistical procedure of choice. The MANOVA procedure resulted in a significant F level. Thus, the next step was to use univariate analyses of variance to answer each research hypothesis. Post hoc analyses, using the Sheffe Multiple Comparisons test, were conducted for all significant analyses (Huck, Cormier, & Bonds, 1974).

Null hypothesis one: There are no differences in the amount of cervical dilatation at admission to the hospital of pregnant adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment. After a significant MANOVA was obtained, hypothesis one was
tested through the application of an univariate analysis of variance procedure. Dilatation of the cervix is evaluated by a physical procedure performed by medical staff at admission to the hospital, is reported in centimeters from 0 to 10, and recorded in the patient's medical records.

Null hypothesis two: There are no differences in the length of labor of pregnant adolescents who complete either a hypnosis program, a supportive counseling program, or who receive no treatment. Hypothesis two was tested through the application of an univariate analysis of variance procedure. Length of labor is reported in time, usually hours, and is the interval beginning with the mother's report of the time of the first regular contractions through the time of the infant's delivery. The average duration of first labors is about 14 hours; the average duration of multiparous labors is approximately 6 hours shorter than for first labors (Reeder, Mastroianni, & Martin, 1980). These data are reported by physicians at the time of delivery.

Null hypothesis three: There are no differences in the use of anesthetic/analgesic agents during the delivery of infants born to adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment. There was a wide range of anesthetic agents utilized by the subjects. An obstetrical anesthesiologist was asked to rank the dosages and agents used in an ordinal scale to render them manipulatable by statistical procedures.
Donald Caton, M.D., Professor of Anesthesiology, Obstetrics, and Gynecology, Department of Anesthesiology, Shands Teaching Hospital ranked the anesthetic/analgesic agents into seven categories with increasing degrees of anesthesia beginning with zero, no use of anesthetic agents. The seven categories included 0) no administration of anesthetic agents, 1) administration of 25 mg. of phenergan, 2) administration of 1 mg of stadol, 3) administration of combinations of phenergan and stadol or more than 1 mg of stadol, 4) administration of epidural anesthetic procedures, 5) administration of epidural anesthetic procedures plus phenergan and/or stadol, 6) administration of general anesthesia (personal communication, April 27, 1987).

Hypothesis three was tested through the application of a Chi-square procedure to determine any difference in use versus no use of anesthesia among the groups and through the use of an univariate analysis of variance procedure to determine the differences in the amount of use of anesthesia.

Null hypothesis four: There are no differences in the birth weight of infants born to adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment. Hypothesis four was tested through the application of an univariate analysis of variance procedure. Birth weight is recorded in grams. Infants weighing in at less than 2500 grams are considered low-birth weight babies. This standard medical evaluation is reported by attending physicians at the time of delivery.
A Chi-square distribution was utilized to determine the significance of categorical data. Based on the observations made during the process of data collection and analysis, it was determined that selected \textit{post hoc} analyses were warranted. Both univariate analyses of variance and Chi-square procedures were used for these analyses. A .05 level of significance was set for rejection of a null hypothesis.

\textbf{Limitations of the Study}

This study may have been limited due to the threats to internal validity based on selection, experimental mortality, and differences among counselors and attending physicians. It was limited in terms of generalizability by problems with variable and ecological representativeness. Finally, this study may have been limited by the nature of the population and issues being examined.

Meaningful comparisons among the three groups may have been inappropriate because of issues involving selection and experimental mortality. Random assignment of subjects to one of two experimental groups was performed, however, random assignment of subjects was not applied to the control subjects. All newly registered subjects who met the criteria of the study were randomly assigned to the experimental treatments, whereas control subjects meeting the criteria of the study were assigned consecutively from the list of previously registered patients. The ethics of providing treatment in a medical setting, the availability of subjects, and the time constraints of the researcher
prohibited full random assignment of subjects. Though the treatment was presented as an aspect of routine prenatal care five subjects chose not to participate. Another five did not complete the research protocol. The differential loss of these subjects and the lack of full random assignment may reflect a pre-treatment difference in the groups.

While both the supportive counseling sessions and the hypnosis sessions proceeded under an established protocol, the supportive counseling sessions were conducted by an advanced nurse midwifery student while the hypnosis sessions were conducted by an advanced counseling student with training in clinical hypnosis. Both counselors were interested in the study. Ideally, the two experimental groups would be conducted by staff within the clinic setting. In this case, the prerequisite knowledge of the mechanics of childbirth and training in clinical hypnosis made it difficult to control for experimenter bias and differences in outcome variables may be related to differences in counselors.

Though all the subjects received prenatal treatment at the same facility and delivered at the same hospital under the same medical protocol, the study was limited by factors related to differences between attending physicians which may affect outcome variables. Individual decisions on medical procedures and dosages of anesthesia were not
controlled for and were assumed to be minimized by use of a standard medical protocol.

This study may have been limited in terms of generalizability by problems with variable representativeness. Although cervical dilatation on admission to the hospital and infant birth weights pose no problems in terms of definition, length of labor and amount of anesthesia as defined in this study may not be defined in the same way elsewhere. Length of labor was a combination of self report and information compiled by medical staff. Each patient was asked on admission to the hospital when her labor began. She was usually the individual responsible for information on the length of the first stage of labor. As patients were admitted and under supervision and observation by medical staff, notations were made concerning the progression of labor and the length of each successive stage. Information in medical records are actually a composite of observations and self report from these two sources.

Degree of analgesia is difficult to define in any medical setting when different types and amounts of anesthetic agents are prescribed. Various anesthetic agents have different potencies and ways of action that may not be comparable by normal statistical methods. For the purposes of this study an expert was asked to rank the various doses of anesthesia in increasing amounts. Different anesthetic agents may be employed in other medical settings and a different rank ordering may be preferred.
This study was limited in generalizability in terms of ecological representativeness. This study took place with pregnant teenagers in a health department clinic. Results of the study may not be generalizable to other obstetrical populations or to teenagers in other geographic or medical settings.

The results of this study may have been limited due to the nature of the population and issues being examined. The effects of hypnosis on the labor and delivery processes of pregnant adolescents were examined. Hypnotic interventions continue to be considered outside traditional medical practice. Although hypnosis has been supported in earlier research with adults, it has been referred to as potentionally beneficial to adolescents in a few selected case studies. Results of this study must be considered pilot work in an area that has gone largely unexplored. As such, appropriate environments for the application of the results of this study may be somewhat limited.

The results of this study also were limited by working exclusively with an adolescent population in a clinical setting. Historically, these young women have poorer rates of using medical care than more mature patients, have fewer economic resources, fewer social supports, and less education concerning their bodies in general and childbirth and pregnancy in particular. These factors make them poor risks for treatment.
Initially this research was to be conducted using groups or at least triads of teenagers attending the prenatal clinic on the same day. Previous research has indicated that groups are the preferred mode of interacting or teaching the mechanics of childbirth for teenagers (Copeland, 1979). This model would allow for the benefits of group interaction, support, and modeling already recognized as important in working with adolescent populations. Before the study was initiated, it became apparent that the selected sample of teenagers were inconsistent in making appointments, had difficulty securing transportation for appointments, and arrived significantly late for appointments that were made. Consistent groups would be difficult to achieve because of the constant change in composition and attendance. A respect for the need for a smooth patient flow in an already overcrowded clinic necessitated a staggering of appointments. Thus, all subjects in the experimental conditions were treated individually.

While an individual treatment modality became feasible, environmental problems throughout the treatment phase of the study were prevalent. Problems securing private, physical space for treatment sessions emerged. A premium on office space meant that whatever setting was available to the experimenters (social work offices, examination rooms, filing closets, etc.) was used. Medical staff frequently needed access to the space for files, supplies, or other
pertinent materials which meant frequent interruptions were often the case. Many of the teenagers who came for prenatal care could only do so by bringing with them their own or other young children in their charge who followed them throughout the clinic visit. These young visitors frequently became another distracting element in the treatment sessions. Children accompanying the patient being called for examination or lab work, all normal activities of a busy health department prenatal clinic, made environmental control and control over interruptions almost impossible.
CHAPTER FOUR
RESULTS AND DISCUSSION

The focus of this study was the effects of focused relaxation and imagery and supportive counseling techniques on the labor processes and birth outcomes of pregnant adolescents. Two treatment approaches were examined and compared in terms of differences reported on measurements of cervical dilatation on entrance to the hospital, length of labor perceived by the mother, type and amount of chemical analgesics and anesthetics used during the labor and delivery process, and infant birth weights. A hypnosis group, a supportive counseling group, and a no treatment control group were compared on outcome variables.

The Statistical Analysis System was used for an univariate analysis of variance procedure on the dependent variables and Chi-square analyses were used with the selected categorical and demographic variables. The acceptable level of significance for all analyses was set at \( p = .05 \). This chapter includes a description of the results of the data analyses testing the four hypotheses and a discussion of the results.

Results of the Study

The MANOVA for redundant, equivalence, and noninformative errors was found to be significant (\( F = 5.64, \ DF = 53, \)
p. F = 0.0001 by the Wilks Lambda Criterion). As a whole, the treatment had an effect on the labor indicators. The next step was a series of four univariate analyses of variance to determine the effect of the group treatment on each of the dependent variables and Chi-square analyses were utilized to determine group differences on categorical data (Huck, Cormier, & Bounds, 1974).

Null Hypothesis One

There are no differences in the amount of cervical dilatation on admission to the hospital of pregnant adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

Medical records admission sheets were used to evaluate the degree of each subject's cervical dilatation as measured in centimeters at admission to the hospital. The degree of cervical dilatation at hospital admission is an ordinal measure and can range from 0-10. The range of cervical dilatation for subjects in the study ranged from 0-10. Each groups' mean centimeters of dilatation at admission to the hospital are presented in Table 6. The univariate analysis of variance procedure was performed to determine whether the degree of dilatation at admission to the hospital among subjects in the hypnosis, supportive counseling, and control groups varied significantly. The results of this procedure are presented in Table 7.
Table 6

Mean Centimeters of Dilatation at Admission to the Hospital by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Hypnosis</th>
<th>Supportive Counseling</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>22</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Mean</td>
<td>5.1</td>
<td>4.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>8.0</td>
<td>10.0</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Table 7

Univariate Analysis of Variance of Cervical Dilatation at Admission to the Hospital

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>118.79</td>
<td>59.39</td>
</tr>
<tr>
<td>Error</td>
<td>63</td>
<td>261.14</td>
<td>4.14</td>
</tr>
<tr>
<td>Corrected Total</td>
<td>65</td>
<td>379.93</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Type I SS</th>
<th>F Value</th>
<th>PR&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP</td>
<td>2</td>
<td>118.79</td>
<td>14.33</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

The univariate analysis of variance indicated that there was a significant difference among the groups in dilatation at admission to the hospital. A post hoc
analysis using Sheffe's multiple comparisons test was performed to determine where the significance lay. Results of this procedure appear in Table 8. Subjects in the hypnosis group and subjects in the supportive counseling group experienced significantly more cervical dilatation at admission to the hospital than subjects in the control group. Therefore, Null Hypothesis One was rejected.

Table 8

Scheffe's Multiple Comparisons Test for Cervical Dilatation at Admission to the Hospital

<table>
<thead>
<tr>
<th>Group Comparison</th>
<th>Difference Between Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis Group-Supportive Counseling Group</td>
<td>0.9864</td>
</tr>
<tr>
<td>Hypnosis Group-Control Group</td>
<td>3.1364 ***</td>
</tr>
<tr>
<td>Supportive Counseling Group-Control Group</td>
<td>2.1500 ***</td>
</tr>
</tbody>
</table>

***Comparisons significant at the .05 level

Null Hypothesis Two

There are no differences in the length of labor of pregnant teenagers who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

Medical records were used to evaluate whether subjects in each group perceived differing lengths of labor as measured in hours of contractions prior to delivery. The range of perceived hours of contractions among all subjects varied from 1.41 to 44.20 hours. The mean hours of
perceived contractions by group are presented in Table 9. Table 10 contains the results of an univariate analysis of variance to determine whether the perceived lengths of labor among subjects in the hypnosis, supportive counseling, and control groups varied significantly. No significant differences were found. Based on the statistical findings, Null Hypothesis Two was not rejected.

Table 9
Mean Hours of Perceived Contractions by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Hypnosis</th>
<th>Supportive Counseling</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>22</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Mean</td>
<td>11.71</td>
<td>14.98</td>
<td>14.14</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.41</td>
<td>3.41</td>
<td>4.90</td>
</tr>
<tr>
<td>Maximum</td>
<td>25.55</td>
<td>32.16</td>
<td>44.20</td>
</tr>
</tbody>
</table>

Null Hypothesis Three

There are no differences in the use of anesthetic or analgesic agents during the delivery of infants born to teenage mothers who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

The type and amount of analgesic and anesthetic agents used during the labor and delivery of infants for all subjects were derived from their obstetrical records. Types of procedure or agents were categorized in an ordinal scale ranging from no anesthetic (or local for repair) during
Table 10
Univariate Analysis of Variance of Perceived Length of Labor

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>104.87</td>
<td>52.42</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>3578.98</td>
<td>67.52</td>
</tr>
<tr>
<td>Corrected Total</td>
<td>55</td>
<td>3683.83</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Type I SS</th>
<th>F Value</th>
<th>PR&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP</td>
<td>2</td>
<td>104.84</td>
<td>0.78</td>
<td>0.46</td>
</tr>
</tbody>
</table>

labor and delivery to general anesthesia using a 7-point scale. Scores ranged from 0-6 in the total population. A Chi-square test was used to determine if differences among the groups on rates of no anesthesia during labor and delivery as opposed to anesthesia during labor and delivery were present. These data are presented in Table 11. Results indicate that there were significant differences (p < .05) among the groups in use versus no use of anesthesia and there were more drug-free deliveries among subjects in both the hypnosis and the supportive counseling groups than among subjects in the control group.

An univariate analysis of variance utilizing data on all subjects was performed to determine if the amount of


Table 11

Chi-Square Analysis of Use of Anesthetic Agents During Delivery by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Anesthetic Use</th>
<th>Non-Use</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>10</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>15.15</td>
<td>18.18</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>45.55</td>
<td>54.55</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>21.28</td>
<td>63.16</td>
<td></td>
</tr>
<tr>
<td>Supportive Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>14</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>21.21</td>
<td>9.09</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>70.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>29.79</td>
<td>31.58</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>23</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>34.85</td>
<td>1.52</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>95.83</td>
<td>4.17</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>48.94</td>
<td>5.26</td>
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<tr>
<td>Total</td>
<td>47</td>
<td>19</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>71.21</td>
<td>28.78</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 14.23 (DF = 2, p = 0.001)
Cramer's V = 0.46

anesthesia used by pregnant teenagers in each of the three groups differed significantly. Results of this analysis are presented in Table 12. Significant differences were noted among the groups.

A post hoc analysis using Sheffe's multiple comparisons test was performed utilizing the common data on the subjects. Results of this analysis appear in Table 13.
Subjects in the hypnosis group used significantly less anesthesia than subjects in either the supportive counseling group or the control group, and significant differences in use of anesthetic agents occurred among groups. Therefore, Null Hypothesis Three was rejected.

Null Hypotheses Four

There are no differences in the birth weights of infants born to adolescents who complete a hypnosis program, a supportive counseling program, or who receive no treatment.

Medical records of subjects indicated their infants' measured birth weights in grams. The mean birth weights of infants in each group are presented in Table 14.
Table 13
Sheffe's Multiple Comparisons Test for Amount of Anesthesia

<table>
<thead>
<tr>
<th>Group Comparison</th>
<th>Difference Between Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis Group-Supportive Counseling Group</td>
<td>-2.0045 ***</td>
</tr>
<tr>
<td>Hypnosis Group-Control Group</td>
<td>-2.4545 ***</td>
</tr>
<tr>
<td>Supportive Counseling Group-Control Group</td>
<td>-0.4500</td>
</tr>
</tbody>
</table>

***Comparisons significant at the .05 level

Table 14
Mean Infant Birth Weights by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Hypnosis</th>
<th>Supportive Counseling</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Size</td>
<td>22</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Mean</td>
<td>3333.18</td>
<td>3455.00</td>
<td>3142.50</td>
</tr>
<tr>
<td>Minimum</td>
<td>2640.00</td>
<td>2760.00</td>
<td>1840.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>4230.00</td>
<td>4980.00</td>
<td>3820.00</td>
</tr>
</tbody>
</table>

weights ranged from 1840 grams through 4980 grams. An univariate analysis of variance was carried out to determine if there were significant differences among the birth weights of infants born to subjects in the hypnosis, supportive counseling, and control groups. Results of this analysis appear in Table 15. No significant differences (p < .05) were found. There was no significant difference in birth weights of infants born to teenage mothers who participate in a hypnosis group, a supportive counseling
group, or a no treatment control group. Therefore, Null Hypothesis Four was not rejected.

Table 15

Univariate Analysis of Variance of Infant Birth weights

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>1100034.84</td>
<td>550017.42</td>
</tr>
<tr>
<td>Error</td>
<td>63</td>
<td>16536427.27</td>
<td>262482.97</td>
</tr>
<tr>
<td>Corrected</td>
<td></td>
<td>17636462.12</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Type I SS</th>
<th>F Value</th>
<th>PR&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP</td>
<td>2</td>
<td>1100034.84</td>
<td>2.10</td>
<td>0.1315</td>
</tr>
</tbody>
</table>

Other Results

During the data collection it became obvious that there were data relative to several other indicators of the labor process that should be collected and analyzed. Additional analyses were conducted to determine if there were significant differences among the groups in the perceived length of each stage of labor, the use of pitocin to facilitate labor, the number of uncomplicated deliveries, the number of surgical procedures, the use of postpartum medications, the length of hospital stay greater than two
days, and the number of infants admitted to the neonatal intensive care unit (NICU).

Univariate analyses of variance utilizing data on all subjects were performed to determine if there was a significant difference among groups in the perceived hours of each stage of labor. The results of these analyses are presented in Tables 16, 17, and 18. No significant differences were found in the perceived hours of each stage of labor among groups.

Table 16
Univariate Analysis of Variance of Perceived Length of Stage 1 Labor

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>71.28</td>
<td>35.64</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>3138.41</td>
<td>59.21</td>
</tr>
<tr>
<td>Corrected Total</td>
<td>55</td>
<td>3209</td>
<td></td>
</tr>
</tbody>
</table>

A Chi-square analysis was performed to determine if there was a significant difference among the groups in the use of pitocin to augment labor. Pitocin is the trademark
Table 17

Univariate Analysis of Variance of Perceived Length of Stage 2 Labor

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>2.48</td>
<td>1.24</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>71.35</td>
<td>1.34</td>
</tr>
<tr>
<td>Corrected Total</td>
<td>55</td>
<td>73.83</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Type I SS</th>
<th>F Value</th>
<th>PR&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP</td>
<td>2</td>
<td>2.48</td>
<td>0.92</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Table 18

Univariate Analysis of Variance of Perceived Length of Stage 3 Labor

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Error</td>
<td>53</td>
<td>0.66</td>
<td>0.01</td>
</tr>
<tr>
<td>Corrected Total</td>
<td>55</td>
<td>0.69</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Type I SS</th>
<th>F Value</th>
<th>PR&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP</td>
<td>2</td>
<td>0.02</td>
<td>1.12</td>
<td>0.33</td>
</tr>
</tbody>
</table>
for oxytocin. It is a chemical agent administered to induce active labor or increase the force of uterine contractions in labor. The results of this analysis are presented in Table 19. There was a significant difference among groups in the use of pitocin to augment labor with the hypnosis group having fewer pitocin-augmented labors than either the supportive counseling or the control groups.

Table 19

Chi-Square Analysis of Use of Pitocin by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>No Pitocin</th>
<th>Use of Pitocin</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>20</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>30.30</td>
<td>3.03</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>90.91</td>
<td>9.09</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>41.67</td>
<td>11.11</td>
<td></td>
</tr>
<tr>
<td>Supportive Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>14</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>21.21</td>
<td>9.09</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>70.00</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>29.17</td>
<td>33.33</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>14</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>21.21</td>
<td>15.15</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>58.33</td>
<td>41.67</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>29.17</td>
<td>55.56</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>18</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>72.73</td>
<td>27.27</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 6.24 (DF = 2, p = 0.04)  
Cramer's V = 0.30

A Chi-square analysis was conducted to determine if there was a significant difference in the number of complicated versus uncomplicated deliveries in the hypnosis group, the supportive counseling group, and the control
group. Complications fell into 36 categories and were recorded in subjects' medical records. The results of this analysis are reported in Table 20. Significant differences were noted among the groups in the number of complicated versus uncomplicated deliveries with the hypnosis group having fewer complicated deliveries than either the supportive counseling group or the control group.

Table 20

Chi-Square Analysis of Uncomplicated Deliveries by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>No Complications</th>
<th>Complications</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>10</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>15.15</td>
<td>18.18</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>45.45</td>
<td>54.55</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>71.43</td>
<td>23.08</td>
<td></td>
</tr>
<tr>
<td>Supportive Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>4.55</td>
<td>25.76</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>15.00</td>
<td>85.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>21.43</td>
<td>32.69</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>1</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>1.52</td>
<td>34.85</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>4.17</td>
<td>95.83</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>7.14</td>
<td>44.23</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>52</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>21.21</td>
<td>78.79</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 12.37 (DF = 2, p = 0.002)
Cramer's V = 0.43

A Chi-square analysis was conducted to determine if there was a significant difference among the groups in the number of births accomplished without surgical
Interventions. Surgical interventions included vacuum extraction, mid- and low-forceps deliveries, and deliveries by Cesarean section. Surgical interventions were reported in the subjects' medical records. Results of this analysis are presented in Table 21. A significant difference among the groups was noted in the number of births accomplished without surgical interventions with subjects in the hypnosis group having fewer surgical interventions than subjects in either the supportive counseling group or the control group.

Table 21
Chi-Square Analysis of Surgical Procedures by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>No Surgical Procedures</th>
<th>Surgical Procedures</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>22</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>33.33</td>
<td>0.00</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>100.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>47.83</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Supportive Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>8</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>12.12</td>
<td>18.18</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>40.00</td>
<td>60.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>17.39</td>
<td>60.00</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>16</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>24.24</td>
<td>12.12</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>66.67</td>
<td>33.33</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>34.78</td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>20</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>69.70</td>
<td>30.30</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 18.02 (DF = 2, p = 0.000)
Cramer's V = 0.52
A Chi-square analysis was performed to determine if there was a significant difference among the hypnosis, the supportive counseling, and the control groups in the use of medication postpartum. Postpartum medications were recorded in subjects' medical records and usually consisted of codeine for pain or antibiotics for infection and/or fever. The results of this procedure are reported in Table 22. A

Table 22
Chi-Square Analysis of Post Partum Medication by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>No Medication</th>
<th>Medication</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>15</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>22.73</td>
<td>10.61</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>68.18</td>
<td>31.82</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>51.72</td>
<td>18.92</td>
<td></td>
</tr>
<tr>
<td>Supportive Counseling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>9</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>13.64</td>
<td>16.67</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>45.00</td>
<td>55.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>31.03</td>
<td>29.73</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>5</td>
<td>19</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>7.58</td>
<td>28.79</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>20.83</td>
<td>79.17</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>17.24</td>
<td>51.35</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>37</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>43.94</td>
<td>56.06</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 10.46 (DF = 2, p = 0.005)
Cramer's V = 0.39

significant difference among groups was found in the use of medication postpartum. There were fewer subjects in the
hypnosis group who used medications postpartum than subjects in either the supportive counseling or control groups.

A Chi-square analysis was conducted to determine if there was a significant difference among the groups in the number of subjects who stayed in the hospital for more than 2 days. The number of days that subjects stayed in the hospital was recorded in and derived from their medical records. Results of this analysis are reported in Table 23. A significant difference among groups was noted in the

Table 23
Chi-Square Analysis of Post Partum Hospital Stay of More than 2 Days by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>2 Days or Less</th>
<th>More than 2 Days</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypnosis</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>21</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Percent</td>
<td>31.82</td>
<td>1.52</td>
<td>33.33</td>
</tr>
<tr>
<td>Row Percent</td>
<td>95.45</td>
<td>4.55</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>39.62</td>
<td>7.69</td>
<td></td>
</tr>
<tr>
<td><strong>Supportive Counseling</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>12</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Percent</td>
<td>18.18</td>
<td>12.12</td>
<td>30.30</td>
</tr>
<tr>
<td>Row Percent</td>
<td>60.00</td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>22.64</td>
<td>61.54</td>
<td></td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>20</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Percent</td>
<td>30.30</td>
<td>6.06</td>
<td>36.36</td>
</tr>
<tr>
<td>Row Percent</td>
<td>83.33</td>
<td>16.67</td>
<td></td>
</tr>
<tr>
<td>Column Percent</td>
<td>37.74</td>
<td>30.77</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>53</td>
<td>13</td>
<td>66</td>
</tr>
<tr>
<td>Percent</td>
<td>80.30</td>
<td>19.70</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Chi-Square = 8.54 (DF = 2, p = 0.01)
Cramer's V = 0.36
number of subjects who stayed in the hospital beyond 2 days with the hypnosis group having fewer subjects remaining in the hospital beyond 2 days than either the supportive counseling group or the control group.

A Chi-square analysis was performed to determine if there was a significant difference in the number of infants born to subjects in the hypnosis group, the supportive counseling group, and the control group who were admitted to the NICU. Admission to the NICU rather than the new baby nursery was recorded in the mother's medical records. The findings from the Chi-square procedure are reported in Table 24. No significant differences were found in the number of infants admitted to NICU born to subjects in the hypnosis group, the supportive counseling group, and the control group.

**Discussion of Results**

There was a significant difference in the amount of cervical dilatation at admission to the hospital among subjects who participated in a hypnosis group, a supportive counseling group, and a control group. The Sheffe's multiple comparisons test indicated that both the subjects in hypnosis group and the subjects in supportive counseling group had significantly greater (p < .05) dilatation at entrance to the hospital than the control group.
Table 24

Chi-Square Analysis of Infants Admitted to Neonatal Intensive Care by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>No NICU</th>
<th>NICU</th>
<th>TOTAL</th>
</tr>
</thead>
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Chi-Square = 3.47 (DF = 2, P = 0.17)
Cramer's V = 0.23

Read (1943) suggested that "a tense mind means a tense cervix" (p.54), and that tension, anxiety, and pain are associated together in the process of labor.

Subjects in both experimental groups may have experienced less tension and anxiety concerning labor and delivery than subjects in the control group. Experimental group subjects were able to postpone their admission to the hospital, or had enough confidence to occupy themselves with other things delaying admission until cervical dilatation
had progressed further. It would be amiss to attribute this difference to the hypnotic and supportive counseling techniques alone. Both groups received childbirth education as a part of the treatment package. The supportive counseling treatment was clearly directed toward the conscious process, focusing on education, support, and alleviation of overt fears whereas the hypnosis treatment was less clearly focused on these conscious issues and more focused on the unconscious process. The hypnotic treatment offered the same components of education and support through the unconscious mind of the pregnant teenagers.

A review of the research literature in both hypnosis and childbirth education indicates that women who participate in these programs demonstrate more self confidence and less tension and anxiety concerning their approaching labor and delivery. A significantly greater dilatation at admission to the hospital by subjects in this study who participated in the hypnosis and supportive counseling groups than subjects who participated in the control group can be viewed as consistent with previous research.

There was no significant difference in the number of perceived hours of labor of pregnant adolescents who participated in a hypnosis group, a supportive counseling group, and a no treatment control group. While the statistical procedures did not indicate significant differences among the groups for perceived length of labor,
a trend was noted among the groups with the shortest mean labors being identified by hypnosis subjects (11.71 hours), followed by the control subjects (14.14 hours), and the longest by the supportive counseling subjects (14.98 hours). Werner (1963) described the laboring hypnotic patient as maintaining a state of "vigil," a state of wakefulness without the presence of a "pain complex." Usually hypnotically trained patients have been told that they will experience little or no discomfort when their contractions begin, so many of them do not believe they are actually in labor. This tendency lends support to the idea that hypnosis subjects perceive their labors as shorter than non-hypnosis subjects. Werner's belief that this difference is simply a function of less perceived discomfort in hypnosis patients in the early phase of contractions is conceivable.

There was a significant difference in the amount of anesthetic agents used during labor and delivery by pregnant adolescents who participate in a hypnosis group, a supportive counseling group, and a control group. Included in both experimental groups were several subjects who had predetermined their use of epidural anesthesia, either through an experience in a previous birth, or through the influence of family or others. The level of significance of anesthetic use may have been somewhat deflated by inclusion of these subjects. Historically, the most common rationale for the use of hypnosis in obstetrics has involved the reduction of pain for the mother during labor, thus reducing
the need for chemical anesthetics. It is not surprising that the hypnotically trained teenage subjects in this study used significantly less anesthetics during labor and delivery than subjects in the other two groups. This finding is consistent with previous research. Hypnosis has been used to reduce the need for chemoanesthesia in a variety of patient populations (August, 1960; Davidson, 1962; Pascatto & Mead, 1967; Perchard, 1962; Tom, 1960; Werner, 1959).

There was no significant difference in the birth weights of infants born to pregnant teenagers who participated in a hypnosis group, a supportive counseling group, and a control group. There were only five low birth weight infants born to subjects in the study and four of them were born premature. All teenagers in the study received nutritional counseling as a part of their prenatal care package. The low incidence of prematurity and the high birth weight of infants may be the result of quality prenatal care received by subjects in the study.

There were a number of results from this study which were not included in the research questions but which are of research interest, nevertheless. The variables were related to perceived hours of each stage of labor, administration of pitocin to facilitate labor, complicated deliveries, surgical procedures, postpartum medication, length of hospital stay, and admission of infants to NICU.
There was no significant difference among the groups in the number of perceived hours of each stage of labor. There is controversy in the hypnosis literature about the effects of hypnosis on length of labor. While most researchers have reported either normal or shorter labors in women using hypnosis, Werner (1963) believed that hypnosis may actually prolong the duration of stage 1 labor. Werner's inference is that this difference is simply a function of less perceived discomfort in hypnosis clients during the early phase of contractions. It is difficult to ascertain if the self report of labor is based on the experience of the teenager's first contraction or when she perceived the "labor" of contractions to have begun. Though no significant differences among groups in the perceived length of each stage of labor was determined, the fact that the hypnosis patients arrived at the hospital in a more advanced state of dilatation and made repeated mentions of greater confidence and applicability of hypnosis in reducing comfort (Appendix D) seems to support Werner's belief.

Fewer hypnosis subjects were administered pitocin during labor than were subjects in either the supportive counseling group or the control group. This may be an indication that labor in these subjects progressed normally and that uterine contractions were well established and were effective. More subjects in both the supportive counseling group and the control group received pitocin, presumably indicating that labor was not progressing for these subjects
in a favorable manner. Fewer subjects in the hypnosis group required this medical assistance.

There were more uncomplicated deliveries among the subjects in the hypnosis group than among the subjects in either the supportive counseling group or the control group. The number and type of complications, other than surgical procedures were not analyzed. Complications during labor and delivery are known to have deleterious outcomes for both mother and child, especially among teenagers. The smaller number of complicated deliveries among the hypnosis subjects is an indication of a higher quality of birthing experience for these young mothers and a better outcome for their infants.

In a similar vein, there were fewer surgical interventions among subjects in the hypnosis group than among subjects in either the supportive counseling group or the control group. There were numerous surgical procedures among subjects in the supportive counseling group and the control group including 8 and 2 Cesarean sections, respectively. It is difficult to ascertain why so many Cesarean sections occurred in the supportive counseling subjects. A review of the case notes for these individuals (Appendix E) reveals that they were in all cases emergency medical procedures precipitated by fetal distress or by biomedical conditions requiring immediate intervention (cord prolapse, frank breech presentation, footling breech presentation) and in one case, the birth of an exceptionally
large infant (4980 grams). It could be suggested that these more serious biomedical conditions are not subject to influence by psychological or social support interventions, however, it is interesting to note that the hypnosis group contained no Cesarean sections. There were also no mid- or low-forceps deliveries and no vacuum extractions in the hypnosis group; in essence, no surgical procedures of any kind.

There were fewer subjects in the hypnosis group than in either the supportive counseling group or the control group who were administered medications postpartum or had a hospital stay of more than 2 days. This finding is congruent with other findings related to fewer complications and fewer surgical interventions. Teenagers in the hypnosis group may have had a more positive birthing experience in general and an easier transition into motherhood than teenagers who did not receive hypnotic treatment.

Though differences among the three groups were not significant, there were fewer infants admitted to NICU born to subjects in the hypnosis group than to either of the other two groups. Data for length of intensive care stay, diagnoses, and procedures were not analyzed. There is some indication that infants born to the hypnosis subjects did not need additional medical attention. The financial benefits of avoiding these interventions are obvious and the human benefits in terms of healthier, more viable infants are unmeasurable. The question arises as to whether or not
hypnosis is an effective intervention in the attempt to reduce complications, surgical interventions, use of medication, postpartum hospitalization, and other sub-optimal birth outcomes with an adolescent population. While the present research does not allow for a definitive response to this question, the trend is a positive direction.

Though this is a statistical study, it would not be amiss to consider some of the benefits of hypnotic treatment implied through the results which cannot be numerically assessed. Hypnosis may have offered the adolescents a way of reducing stress and assisting them through the maturational crisis of pregnancy as well as a concept and technique which may benefit these young women substantially in other ways. Subjects made reference to using the technique for "marital problems," to "feel better about myself," "to relax during breaks at work." After the first or second hypnotic treatment, patients developed a calmness that was noted by medical staff in several instances.

It has been said that most people can benefit from hypnosis to some degree and that some individuals can benefit profoundly. There are at least two individuals in the hypnosis group who were able to use the technique in such a personalized and dramatic fashion that case studies appear to be warranted. One of these subjects delivered a healthy girl after a labor of 80 minutes while another was able to arrest what appeared to be pre-term labor.
Both hypnosis and supportive counseling subjects appeared to benefit from the treatment. Both interventions appear to have offered the following benefits:

1. Individual attention: Each subject received four individual sessions that focused on their emotional needs.

2. Childbirth education: The supportive counseling treatment was clearly directed toward the conscious process, focusing on education, support and alleviation of overt fears, and concerns and questions. The hypnosis treatment was less focused on the conscious issues and more focused on the unconscious processes.

3. The teenager's role in her pregnancy: In both groups an attempt was made to convey to the subjects their role in the pregnancy and the positive benefits this pregnancy might have on their lives. The concept of the patient's power, control, and responsibility were perhaps most clearly focused on through the hypnotic treatment program. The concept of the teenager being capable of decisions and control over the process and entitled to the joy involved in having a baby were presented through both overt messages and also through hypnotic suggestions. Statements by hypnosis subjects such as "this is a big moment in my life," believing she would do a "good job," and "looking forward to labor and delivery" all support the belief that the hypnosis offered these young women a sense of control and power over their pregnancies.
CHAPTER FIVE
FINDINGS, IMPLICATIONS, SUMMARY, AND RECOMMENDATIONS

Findings

The following findings may be drawn from the data presented in this study:

1. Pregnant teenagers who completed either a hypnosis or a supportive counseling treatment had greater cervical dilatation on admission to the hospital than those who received no specialized psychological treatment program.

2. There were no differences in the perceived length of labor of pregnant teenagers who completed either a hypnosis treatment program, a supportive counseling treatment program, or who received no specialized psychological treatment program.

3. Pregnant teenagers who completed a hypnosis treatment program used significantly less anesthesia than mothers who completed a supportive counseling group or who received no specialized psychological treatment program.

4. There were no differences in the birth weights of infants born to pregnant teenagers who completed a hypnosis treatment program, a supportive counseling program, or who received no specialized psychological treatment.

5. There were no significant differences in the perceived length of each stage of labor of pregnant
teenagers who completed either a hypnosis treatment program, a supportive counseling treatment program, or who received no specialized psychological treatment program.

6. Pregnant teenagers who completed a hypnosis program were administered less pitocin to augment labor than teenagers who completed a supportive counseling group or who received no specialized psychological treatment program.

7. Pregnant teenagers who completed a hypnosis program experienced fewer complicated deliveries, fewer surgical interventions, less postpartum medication, and had shorter postpartum hospitalizations than teenagers who completed a supportive counseling group or who received no specialized psychological treatment program.

8. There is some indication that infants born to pregnant teenagers who completed a hypnosis treatment program needed fewer intensive care interventions than infants born to teenagers who completed a supportive counseling group or who received no specialized psychological treatment program.

Implications

The results of this study have implications for the application of psychological approaches to the field of obstetrics, the practice of hypnotic and social support interventions in a medical setting, and the training of practitioners in hypnotic techniques.

Psychological techniques, in this case hypnosis and supportive counseling, when used in an obstetrical setting,
can impact the labor and delivery processes of pregnant adolescents in a positive way. Psychological treatments appear to be effective in reducing fear and anxiety about labor, the use of chemical anesthesia, and some of the suboptimal pregnancy outcomes characteristic of adolescent pregnancy.

This study is a model of a multidisciplinary approach to a complex problem which included the physiological and psychological functioning of the expectant teenager and her fetus. This approach requires the cooperation of professionals in medicine, nursing, and mental health. The collaboration of such professionals may offer a patient population a model of prevention, intervention, and aftercare that has impact on the individual's total functioning.

The results of this study have implications for the training of practitioners in hypnotic techniques. The results of this study contribute to the growing body of evidence that hypnosis is a simple, time-limited intervention that can be administered to a normal population of pregnant women by a qualified mental health practitioner rather than the obstetrician and have favorable effects on the birthing process. Inservice programs for clinical staff not only in obstetrics, but in all medical areas can increase awareness of the importance of suggestion in medical case management. Misconceptions and superstitions about hypnosis must be
dispelled and adequate education and training programs for qualified professionals made available.

Summary

The purpose of this study was to examine the effects of hypnosis and supportive counseling techniques on the labor processes and birth outcomes of pregnant adolescents. The identified variables assessed included cervical dilatation at admission to the hospital, perceived length of labor, type and amount of analgesic and anesthetic agents used during labor and delivery, and infant birth weights. A hypnosis treatment, a supportive counseling treatment, and a no treatment control condition were compared in terms of their effects on the various outcome variables.

Chapter One contained the statement of the problem, the purpose of the study, the need for the study, significance, and the definition of terms. Chapter Two contained a review of the literature including hypnosis in obstetrics, adolescent pregnancy, psychological interventions in obstetrics, and childbirth education. Chapter Three described the hypotheses, design of the study, population and sample, procedures, treatment, instrumentation, analysis of the data, and limitations of the study. Chapter Four contained the results of the study and a discussion of the results.

A significant difference among groups was found on cervical dilatation on admission to the hospital with subjects in hypnosis and supportive counseling groups having
significantly more dilatation on admission to the hospital than subjects in the control group. There were no significant differences among the groups on perceived length of labor. Significant differences among the groups were found on type and amount of analgesic and anesthetic agents used during labor and delivery with subjects in the hypnosis group using significantly less anesthesia than subjects in either the supportive counseling or control groups. There were no significant differences in the birth weights of infants born to subjects in a hypnosis group, a supportive counseling group, and a no treatment control group. There were no significant differences among the groups on perceived length of each stage of labor. Subjects who participated in a hypnosis treatment group were administered less pitocin, had fewer complicated deliveries, and experienced fewer surgical interventions than subjects in a supportive counseling treatment group or subjects in a no treatment control group. Hypnosis subjects were administered less medication postpartum and experienced shorter hospitalizations than subjects in either of the other two groups. Infants born to hypnosis subjects appeared to need less neonatal intensive care than infants born to subjects in the supportive counseling group or the control group.

Recommendations

1. It is recommended that future investigations utilize group procedures to offer hypnosis and supportive
counseling treatments to determine if labor and delivery outcome variables in pregnant adolescents may be affected by a different treatment delivery model.

2. It is recommended that adolescent patients in private practice and multidisciplinary programs (as opposed to clinics) be offered hypnotic and supportive counseling treatment packages to determine their effectiveness on pregnancy and outcome variables.

3. It is recommended that future investigators of hypnotic and supportive counseling techniques utilize a larger sample in order to clarify the effects of these techniques on infant variables such as admission to neonatal intensive care, prematurity, and low birth weight.

4. It is recommended that longitudinal studies utilizing hypnotic and supportive counseling techniques be undertaken with pregnant adolescents to determine the effects of these interventions on complications, surgical procedures, contraception compliance, continuing education, and the incidence of child abuse or neglect.

5. It is recommended that future researchers offer hypnotic and social support programs to pregnant women in the full range of childbearing years to determine the effect of these treatment packages on a mature population.

6. It is recommended that future research focus on the effects of psychological interventions, specifically hypnosis in other areas of medicine where the patients may benefit from a heightened sense of control, psychological
well-being, awareness of their psychological assets, and becoming a more active part in their own physical health program.
APPENDIX A
INFORMED CONSENT FORM

Protocol #_____

PROJECT TITLE: The effects of focused relaxation and imagery on the labor processes and birth outcomes of pregnant adolescents.

PATIENT'S NAME ____________ DOB _______ DATE _______

The following information has been explained to me by _______ pertaining to the care I will receive during the last months of my prenatal care at the Alachua County Public Health Unit.

A special project is being made available to teenagers who are pregnant and get their prenatal care at the Health Department. It is free and can be seen as a part of your regular prenatal care.

Because you are a teenager we want to give you some extra support during your pregnancy and provide you with someone to talk to about any concerns you have or answer any questions about your pregnancy, labor, and delivery.

During the last three months of your pregnancy you will be asked to meet with a counselor or a health educator for discussions and counseling or focused relaxation and counseling. You will be assigned to a group by random. These sessions will coincide with your scheduled clinic appointments and will not interrupt your medical treatment in any way.

Counseling Group: There will be four sessions that will offer you the opportunity to discuss your concerns surrounding pregnancy and delivery, the addition of a newborn in your life, and your plans for the future. You also will learn what happens in pregnancy, labor, and delivery so you will know what to expect when your baby is ready to be born.

Focused Relaxation and Imagery Group: There will be four sessions that will offer you the opportunity to learn focused relaxation and imagery for childbirth, a method shown to be effective in dealing with the anxiety, fears, and pain associated with pregnancy and the birth experience,
and to learn what happens in pregnancy, labor, and delivery so you will know what to expect when your baby is ready to be born.

If I decide to participate in this study, I will not be subjected to any discomforts or risks. Nor do I expect any benefits to come to me as a result of my participation. I am free to withdraw and to discontinue participation in the study at anytime without prejudice. I understand that no monetary compensation is being offered to me as a participant in this study. I understand that the investigator will answer any questions concerning the procedures that I may have.

If I am 18 or under and unmarried, I am exempt from parental consent in this study by nature of the fact that I am pregnant.

After delivery, access to my medical records will be granted to the investigator. It is agreed that the information gained from the study may be used for educational purposes which may include publication. I understand that information derived from this study will be kept confidential and anonymity will be maintained within legal limits.

I have read and understand the above described procedure in which I am to participate and have received a copy of this information.

(WITNESS) ____________________________ (SIGNED) ____________________________

I have fully explained to ____________________________ the nature and purpose of the above described procedure and the risks that are involved in its performance. I have answered and will answer all questions to the best of my ability.
The hypnosis subjects were offered four sessions of individual counseling offering the teenagers an opportunity to learn and experience the methods and benefits of focused relaxation and imagery to increase the likelihood of a safe, full term, relatively pain-free delivery. Sessions were in a progressive sequence and focused on: experiencing and practicing a hypnotic induction and the deep relaxation possible through this method, the conceptualization of pregnancy, labor, and delivery while induced, suggestions for application of the technique and its benefits during labor and delivery as well as at other stressful or exciting periods in their lives, suggestion for increased ego strength and positive resolution of the transition to motherhood as well as an opportunity to discuss any issues they would like. Sessions followed a set protocol so that all subjects received the same treatment.

Session One

Session One will offer the teenagers an introduction to the process of hypnosis; an explanation of the pregnancy process, including the birth experience and typical medical
procedures; an opportunity to personally begin to learn and experience an induction for relaxation.

Below is a detailed description of the Session One format, including transcripts of the introduction, explanation of focused relaxation and imagery, and pregnancy education talk.

**Session One- Hypnosis Protocol**

Good morning, __________, My name is __________ and I'm here to work especially with pregnant teenagers who come to the Health Department for their prenatal care. You've been selected to participate in a project designed to help teenagers have happier, healthier, pregnancies and deliveries. Sometimes it's nice to have someone special to talk to when you come to the clinic and that's why I'm here. We will talk about a lot of different things and I'll also be teaching you a special technique to use during your pregnancy, labor, and delivery. This technique is called focused relaxation and imagery. Because you use it during your pregnancy and at childbirth you can think of it as medical relaxation.

Research about childbirth in the last few years has shown that mothers who learn these techniques can look forward to less fear, worry, and pain before and during the delivery; less fatigue and a speedier recovery following delivery, more confidence and control during the pregnancy and delivery, more enjoyment of the whole experience, and
fewer side effects due to drugs following the delivery. Medical relaxation is a technique that's very simple to learn, you might be surprised how simple, and how quickly you learn it, and though you'll be using it during your pregnancy and delivery, you might want to use it during other times in your life too.

Medical relaxation is sort of like daydreaming. And what happens when you daydream? You gaze into space, and you close your eyes and images or pictures appear and you become absorbed in them. You can be right next door or miles away and imagining the past or future and I'll be sitting here right along side you daydreaming too, and talking to you and suggesting to you how to make those daydreams in a way that's helpful for you. You'll only accept those suggestions that are in your best interest or that you feel will be of value to you. You will be very relaxed and very comfortable and always in charge of what's going on. So you don't have to be concerned. You can only enter the state of focused relaxation when you want to do so, because you must learn how to go into focused relaxation.

Now, I stress the word **learn** how to do it, because focused relaxation is purely a skill that is learned. I'm supposed to be here as a teacher trying to teach you to learn to enter focused relaxation, and how do you learn anything--by following instructions. You buy some piece of material to make a dress or a piece of equipment at a place.
It comes in all sorts of different parts. You won't get it together unless you follow the instructions. That's the same method in focused relaxation. Follow the instructions and you will end up in a state of focused relaxation and we'll be learning it in a few moments.

What's very nice about this method of learning is that the more comfortable you become, the more fully you can appreciate and learn focused relaxation. All you need to do is listen to me and allow yourself to experience this very pleasant state. Like anything you learn, the more often you do it the better you will be. I've learned it, and you can learn it too. I'm going to take a moment and put myself in that very relaxed place called medical relaxation so that you will know what it looks like and you can see how very quickly you can become completely and pleasantly relaxed. [Experimenter models behavior here by placing herself briefly in the hypnotic state.]

Now, I've said that focused relaxation is like daydreaming, so settle yourself now for a very pleasant daydream. Get yourself nice and comfortable. Sit in the chair with your arms sort of resting in your lap and pick a spot on the ceiling to sort of gaze at and keep your eyes glued to that spot. That's it, and feel how your eyes are starting to get tired as you sit there being just as calm and as motionless as you possibly can, that's good, and
imagine how relaxed and comfortable you'll be all over in a moment when you close your eyes.

When you close your eyes you'll feel so relaxed, so comfortable that you'll permit them to remain closed, shut tight, comfortable, and relaxed until once again I suggest that you open them. Now, as you close your eyes take a deep breath, a deep breath, and as you exhale, begin to notice a change in your breathing. That's right, from over here I can see that the change has already taken place in your breathing. Right now you're breathing a bit more slowly, a bit more deeply than you ordinarily do, and that's a good sign, this slow deep breathing. It's a sign that you're becoming very relaxed. Now go deeper and deeper relaxed, very pleasantly, comfortably relaxed.

Begin to feel, if you will, some very pleasant, heavy sensations starting to come all over your body. Most teenagers tell us they start down in the feet, the soles of the feet, and you can feel a pleasant heaviness developing down in the soles of your feet. It's a sort of feeling that your feet are starting to fall asleep. Maybe it has a color, any positive healthy color, spreading out on your feet.

Feel this pleasant happiness work its way up through your feet going upward slowly toward your ankles and then up into the lower part of your legs, going into the calf muscles as you relax, deeper and deeper and deeper. And
then slowly feel these same pleasant sensations come up through your knees and on up into your thighs, comfortable, relaxing sensations, moving slowly upward through your thighs until they get all the way up into your hips and notice that your legs do feel rather heavy, with a pleasant heaviness, very comfortable heaviness and now you're deeply, deeply, deeply relaxed.

Notice the same sensations are already present in your fingers, moving their way slowly up through your hands on past the wrists and into the forearms, pleasant, heavy comfortable, relaxing sensations. Moving slowly up past your elbows and on into your upper arms as you go deeper, and deeper to sleep. Slowly upward, feel the pleasant heavy sensations moving all the way up to your shoulders and now notice your arms, too, feeling heavy with a very pleasant heaviness, a very comfortable heaviness and that you are deeply, deeply, deeply relaxed.

Then the same sensations take hold of your trunk, and the muscles and organs of your torso. Feel them starting down in your hips and buttocks, this time, and working their way upward two ways at once. Notice them coming up your back through the muscles along side your spine, then coming up the front through the muscles and organs of your abdomen. And then slowly upward, front and back, into the muscles and organs of your chest, pleasant, heavy comfortable, relaxing sensations, moving slowly upward into all the muscles of
your neck. Now notice that your whole body feels heavy, with a pleasant heaviness, a very comfortable heaviness and that now you are deeply relaxed.

Now, I'm going to count from 1 to 20. I want you to notice how each count takes you deeper, relaxed, 1.....2.....3, start to go deeper 4...5...6, much deeper, 7, 8, 9, deeper, deeper, deeper, 10, very much deeper, half asleep,....11, 12, 13, into real deep relaxation ... 14, 15, 16, 17, 18, 19, deeper, deeper, deeper, 20, deeply and comfortably relaxed now, just comfort and relaxation. You know, you're beginning to have this type of feeling: one day you come home dog tired and you throw yourself across a comfortable bed and you lay there with your eyes closed. You aren't asleep. You can hear the television blaring in the next room, or people talking in the background, nurses talking or other patients, but it feels so good to be so pleasantly comfortable, so deeply relaxed, that the sounds don't bother you at all. You're feeling so well relaxed, feeling very, very well. And you can hear everything positive that is being said to you and that you say to yourself. [For Sessions Two, Three, and Four the following childbirth education talk will be replaced by instruction for imagining a pleasant restful place accompanied by specific suggestions for each session.]

Now, we both know that you're pregnant and expect to deliver a baby, and it's a wonderful thing to be able to
bring a new life into this world. You can feel very proud of the fact that you are pregnant and going to bring a baby into this world. And, of course, you want to do it in the best possible way; you want to do it with the least danger or harm to your baby or yourself. At the same time, you want to be comfortable, as comfortable as you are now.

Doctors are finding out that patients who are educated about the mechanics of childbirth are really doing the best at delivering their babies, that a lot of the fears that they had can be relieved when they know the exact mechanics. Some of them are using natural childbirth, some are using Lamaze, and similar techniques. Many of us have found out that through focused relaxation these things can be made better and so today I want you to realize that right now, your baby is living and growing inside you in a large, muscular pear-shaped organ that we call the uterus or womb. The walls of this organ are home for the baby, being made up completely of muscular tissue.

There has got to be an opening somewhere in that organ or the baby couldn't get out. Such an organ does exist, and it's down in the bottom of the uterus or womb. That's at the bottom if you were in an upright position. It stays closed throughout your pregnancy so that your baby can live and grow inside you. In order for your baby to be born, that organ must be opened up; there must be some motive power to do this; that motive power is generated by the
muscles in the walls of the uterus or womb. They will contract; they will get hard.

Each time the muscles in the walls of your uterus or womb contract and get hard, it will be doing something for you. It will be opening up that cervix, the mouth of the womb, until it finally dilates completely. And when it dilates completely, there will be an opening between the uterus and the vagina, that cavity in the lower part of your body through which you became pregnant. Finally, after the cervix has dilated completely, the baby will start its descent down through the uterus, out of the cervix, down through the vagina and then out through the external vaginal opening, and the baby will be born. So a series of contractions of the muscles in the walls of the uterus will dilate the cervix, the mouth of the womb, until it dilates completely.

Now these contractions are not strange to you because you've had muscular contractions all your life. Every time a part of your body has moved, it's taken either one muscle or a group of muscles to move that particular part of your body. Every time you take a breath, several groups of muscles are necessary to contract in order for that to happen. Every time your heart beats, that's a muscular contraction. So you know instinctly, muscles have been contracting for you all your life, while you've been completely comfortable. So during your labor and delivery,
the muscles in the walls of the uterus can likewise contract while you're completely comfortable in order to dilate the cervix, the mouth of the womb, until it dilates sufficiently to let the baby start coming down through the birth canal, so it can be born.

Now about these muscular contractions and how they actually do feel; we can do a little bit of testing right here and now in this respect. In just a few moments, I'm going to ask you to take the fingertips of your right hand and bring them up to your right shoulder. As you do that, you'll be contracting the large muscle in the front of your upper arm, the muscle called the biceps muscle. When you do that, I'm going to ask you to take your left hand and bring it over to feel that muscle and to feel how hard it has become, because that's a pretty strong muscular contraction. The muscles in the walls of the uterus won't have to contract any more violently than that. In fact, it will probably be even less.

So now if you will just take your fingers, the fingertips of your right hand and bring them up to your shoulder and let them rest on your right shoulder, then take your left arm and put the fingers of your hand on that big muscle in the front of the upper part of your upper arm. Feel how hard that muscle can get, that's a muscular contraction. I'm sure you noticed, it doesn't hurt, doesn't
bother you doing it. So, the muscles in the walls of your uterus can contract in the same way.

Now, you can take the fingers of your left hand with your left hand and arm and put them back on the arm of the chair where they were before and you can take the fingers away from your right shoulder, and let your right arm once again rest on the arm of the chair and go back into the deepest relaxation that you can attain, go deeper, and deeper, and deeper relaxed, deeper, and deeper relaxed.

Now at the end of the first stage of labor, the muscles in the walls of the uterus aren't going to quit, they're going to keep on contracting, but now for a brand new purpose. Now they've got to get the baby out, so they'll keep on contracting, and push the baby down through the dilated cervix, through the vagina and out through the vaginal opening, so it can be born. However, you will be able to use other muscles at that time to help the uterus out.

We won't have to teach you how to do this, your unconscious mind, which is working for you in the state of focused relaxation, knows exactly how you are supposed to use these muscles; and it can teach you much better than I can. So that when you do go into labor and dilate that cervix completely, your unconscious mind will come right in to do its job and help you use those muscles of the
abdominal wall and muscles of the perineum to push your baby to get it out.

Then shortly, before that happens, as the baby's head or whatever part is coming down first presents at the vaginal opening, it may become necessary in your doctor's judgement to help out a little bit to this extent. He may notice that the opening of the vagina seems a little bit small, and it will be sort of a tight fit to get the baby out. He may decide to make a small incision, which we call an episiotomy to your perineum from the vagina, the back of the vagina down toward the rectum.

But, do you know a strange thing, when he makes that incision, it's not going to bother you, I'll tell you why. If you take human tissue, any part of your body where there is a little bit of loose, flabby skin, and pull that skin for a while so it stretches out and then test it to see what it's become--numb. The more you put human tissue on the stretch, the number it becomes. So that by the time the incision is made, that tissue has been put on the stretch, it's already become numb, so that when the incision is made rather than getting a feeling of discomfort from it, you'll have a feeling akin to relief. Relief to this extent, now you'll know, ooh there's plenty of room for the baby to come through now; and so it will be a comforting feeling for you to know that at that particular time.
Then, of course, the baby will be born, and just because the baby is born the delivery isn't over. The cord between you and the baby will be cut and tied; you won't even know that's happening. You won't feel anything there whatsoever. Then it will be necessary to complete your delivery with a third stage of labor, shortly after the baby is born and the cord has been cut and tied, the baby has been put possibly right across your abdomen for you to hold. That is the best place for the baby to go after it has been born, and it's mouth has been suctioned clean and it's nostrils have been suctioned clean, to put it there and that's where it probably will be put if you so desire.

But just at that time the muscles of your uterus will again begin to contract; this time with a third thing to do--expell the afterbirth, which is also called the placenta. So a few contractions and usually it will all happen by itself. Once the placenta has been delivered, if an episiotomy has been done or if by any chance a small tear has occurred somewhere in the wall of the vagina, that will be repaired at that time.

Notice, up to this time, you haven't needed any drugs or anything and you may want a little bit of novacaine put in at that time. We can do it, there's no harm in it whatsoever; you've done your job. You've delivered the baby now; so you might say to yourself in your mind's eye, "Well, Doc, why don't you do some work for a change, put a little
novacaine in there before you sew it up." But, you probably won't even need that, because it will already be numb.

While the doctor is sewing up the perineum, he will probably talk to you something like this and you can imagine your doctor saying this to you now, "In these next few days, you're going to have a very, very pleasant time here at the hospital. You'll pass your water without being catherized; you'll move your bowels without enemas; you'll have a good appetite, you'll have no nausea and vomiting; you'll be able to keep all the food down; the food will be very pleasing to you; the nursing care at the hospital will be very pleasing to you. I doubt if you might have a few stitches; but if you do you know you'll hardly know they are there; they won't bother you at all. In fact, you'll treat this whole period as a very, very pleasant vacation." Now, relax deeply and become more and more deeply relaxed.

Occasionally, during the first stage of labor, or at some other stage, a real hard contraction of the uterus may come along, of such intensity that it makes you the tiniest bit uncomfortable. Now, if that happens, you'll be able to do something about it all by yourself; that can act as a signal for you to put yourself back in this pleasant state of focused relaxation.

As soon as you feel a contraction at any time during your labor, first stage, second stage, even third stage, of sufficient intensity to make you the tiniest bit
uncomfortable, you'll be able to let your eyes close and go into the deepest state of relaxation that you've learned how to attain. Then, when that particular contraction comes to an end, if you care to, you can open your eyes, come right out of the state, feel comfortable, feel calm, and relaxed like waking from a pleasant nap.

Now, sometimes you might want to put yourself into relaxation for one of these contractions, you might decide, "Ooh I've been in labor eight or ten hours, I'd like to take a little nap or something like that. So, why come out at the end of that first contraction, let yourself stay in for several contractions, for enough time to get a nap, or if you'd really like to, you'll let yourself stay in the relaxed state until your baby is born. That's entirely up to you. You have all sorts of options, all sorts of choices and there is no particular way of birthing babies.

So, you will have a couple of signals when a contraction starts, you'll put yourself into relaxation and when the contraction comes to an end, you can take yourself out. Now, I can't produce those contractions for you at this particular time, but I can give you some spoken words that mean the same thing. So, if at any time during the remainder of this labor or delivery, you say to yourself the words "contraction starting," that will mean to close your eyes, become deeply relaxed, go into the deepest relaxation you can attain. As soon as that contraction comes to an
end, you can say to yourself the words, "contraction over," and come out of the pleasant state that you are in, wake up feeling refreshed, calm and relaxed, like waking from a long pleasant nap.

Now, we're going to test that for just a moment in just a few seconds to show you how easy it is to go in and come out of focused relaxation once you've learned how to do it by means of signals. Now, our signals are going to be, "contraction starting," and your eyes close, and they are closed now. So we'll start off with the words, "contraction over" which will bring you out of this particular state. You'll let your eyes open, you'll feel comfortable, calm and collected, having been completely relaxed, and then I'll use the words "contraction starting" and that will teach you to close your eyes and go right back into this deep state of relaxation, and to stay in it until once again it's suggested that you do come out or if you are in labor at the time, till the contraction comes to an end or the delivery comes to an end and it's time for you to come out.

So now feeling very wonderful, like waking from a long pleasant nap, feeling very proud of your learning techniques because you've learned how to do something which you're going to find to be very valuable to you, you should be proud of your accomplishments. After waking up, when you do, feeling very very calm, very relaxed, very refreshed, like waking from a long, pleasant nap, "contraction over."
"Contraction starting" which means close your eyes and go back into deep relaxation. Go into the deepest relaxing, 1...2...3...4...5...6...7...8...9...10, half asleep 11...12....13....14....15....16....17....18....19....20, deeply relaxed. You see you can go in and you can go out of this pleasant state at your will by signals that you can do all by yourself because you are the one who will know the contraction is there. Now go very deeply, pleasantly relaxed. [Pause. Here the patient is given a few moments to alert herself and bring her attention back to the room.]

Now, if the contraction does come along, it makes you feel that you'd like to go into deep relaxation, all you do is close your eyes and go right back in. When it comes to an end, if you feel "I'd like to be out of it, I'd like to be talking to my boyfriend or my mom," for any reason whatsoever at the end of that contraction, all you have to do is remember the words "contraction over" or just come out on your own. You can do all these things on your own.

We're reasonably sure that this can last all the way through your entire labor. But we'd always like to have certain things to fall back on; if you have had a baby before, if sometime during this coming labor and delivery you feel that you need a little help, some way or another, you know that there are medications around, even anesthetic agents around which take all your discomfort away if you do have sufficient discomfort. So you realize, you will always
be able to get something like that, if it's necessary. However, chances are you won't have to ask for it, you won't need it; but if you do, it's going to be there. All the things we've ever had are still there for you in the delivery room.

[After the specific suggestions given in Sessions Two, Three, and Four the induction procedure continues at this point.] All of these pleasant things that we like to do must come to an end sometime. So slowly, gradually, let this particular thing that you're doing come to an end and return to the room that we started all this in. You're sitting comfortably, completely relaxed in the arm chair staying deeply, deeply, deeply relaxed. Now in a few moments, I'm going to ask you to rouse up from this pleasant state.

When you return to this room you can bring back those feelings of deep relaxation and comfort, and feel refreshed and awake. I'm now going to count from 1 to 5, and when I reach 5 you can be back in this room, awake, feeling refreshed and relaxed. 1...coming back...2...refreshed...and relaxed...3...halfway back...4...your eyes may being to flutter, refreshed and relaxed...5...fully awake and comfortable.
APPENDIX C
DATA COLLECTION FORM

Name __________________ Race__ M.S.__ Group & # ____________

D.O.B. ______________________ Age at Conception: _____

Weeks at 1st clinic visit _____

Gravity |__| _ _ _ _ _ EDD __________

Last grade completed _______

Creasy score ___________

Comments/Clinical observations

Interview:

Session 1:

Session 2:

Session 3:
Session 4:

Hospital # ____________________
VSV at Birth ________________  Apgars ________

Dilatation ________________

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<th>Total</th>
<th>1st Stage</th>
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Length of Labor _____  _____  _____  _____

Weeks gestation ________  Birth Weight _____ gms.

Anesthesia: 1. none ________

2. demoral/phenergan ____ mg.

3. stadol ____ mg.

4. epidural ________

5. general ________

# of Clinic Visits ________  Bottle _____

Breast _____

Both _____

Complications: 1 = yes, 2 = no

1. None

2. Active herpes

3. Multiple pregnancy

4. Polyhydramnios

5. Preeclampsia, mild

6. Preeclampsia, severe
7. Eclampsia
8. Placenta previa
9. Bleeding, site unknown
10. Abruptio placenta
11. Premature rupture of membranes
12. Chorioamnionitis
13. Olighydramnios
14. Premature labor
15. Precipitous labor
16. Prolonged labor
17. Prolonged latent/active phase
18. Prolonged second stage
19. Secondary arrest dilatation
20. Fetopelvic disproportion
21. Abnormal presentation
22. Complications with meds/anesthesia
23. Cord prolapse
24. Fetal acidosis (pH 7.2)
25. Decreased FHT variability
26. Multiple variable decelerations
27. Multiple late decelerations
28. Extended fetal Bradycardia
29. Extended fetal Tachycardia
30. Shoulder dystocia delivery
31. Meconium stained fluid
32. Vacuum assisted delivery
33. Low-forceps delivery  
34. Mid-forceps delivery  
35. Primary low transverse cesarian section  
36. Other  
Postpartum meds for pain  
pitocin  
More than 2 days hospitalization  
Infant in Neonatal Intensive Care  
Comments:

Follow-up:
APPENDIX D
CASE NOTES ON THE HYPNOTIC SUBJECTS

1. C. was an 18-year-old, single, black primigravida who recently graduated from high school. She was a confident young woman, and expressed excitement about this pregnancy, and about producing her family's first grandchild. She reported believing that labor and delivery would be a "big moment in her life" which she would "handle well". She was a good subject and produced vivid imagery. She used the trance state to relax while lab technicians drew blood and later in her pregnancy while having pelvic examinations. This young patient entered the hospital at 3 cm dilatation and delivered in 11 hours and 30 minutes with 2 mg of Stadol and 25 mg of phenergan. Her labor was complicated by mild pre-eclampsia and secondary arrest of labor caused by a hypotonic uterus. She delivered a healthy girl, weighing 3600 with apgars of 9 and 9. She was treated with magnesium sulfate therapy for pre-eclampsia, received a blood transfusion, was administered codeine, and released. Postpartum reports indicated good mother-infant bonding.

2. K. was an 18-year-old, single, black female pregnant for the third time. Her first child was premature
and lived only 20 minutes. Her second child was born less than 12 months after the first pregnancy and was delivered after a 43 hour labor. K. initially expressed ambivalence about this pregnancy. Her greatest fears were that the labor would be long and difficult or that the baby would die, like her first child. She was a fair subject, developing a moderate level of trance as evidenced by her relaxed muscle tone. She reported practicing the technique at home and when she was worried about financial matters. After about the second session, she began looking forward to this labor and delivery. She entered the hospital in her 36th week at one centimeter dilatation, with premature rupture of the membranes. She experience a labor of 21 hours and 24 minutes and produced an infant weighing 2640 grams with apgars of 8 and 9. During her labor she was administered 2 mg Stadol. She developed a postpartum infection and was released 10 days after delivery.

3. R. was an 18-year-old, married, white female with one child at home. Her previous labor lasted 24 hours and was conducted under epidural analgesia. R. received a minimum of prenatal care due to difficulty with transportation. R. was a ready subject who expressed confidence that she could deliver this time without medication. R. entered the hospital at 4 cm dilatation and delivered in 5 hours without anesthesia. Her infant weighed 3320 grams and received apgars of 9 and 9. Her labor was
complicated by terminal fetal bradycardia and her postpartum course was uneventful. In a follow-up conversation R. reported using hypnotic techniques not only during her pregnancy and labor, but for stress related to marital issues.

4. S. was a 16-year-old, single, black female, pregnant with her second child. She stated that labor for her last child was easy (24 and a half hours) and was accomplished without medication. She was a talkative young woman with a ninth grade education and stated that she can't read or write. She had recently dropped out of school because of peer relationship problems regarding her pregnancy but planned to return to school after her baby's birth. She reported that she has no understanding of birth control and asked to be referred to a teaching nurse for birth control information after the delivery of her child. S. was a ready subject with a vivid imagination, stating that the trance state was fun, "like daydreaming." S. entered the hospital at 7 cm dilatation and delivered in 16 hours and 5 minutes. She received an epidural for relief of pain. Her infant received apgars of 8 and 9 and weighed 3660 grams. She requested oral contraceptives when she left the hospital, and her postpartum course was uneventful.

5. L. was a 17-year-old, single, black mother who entered treatment in the 23rd week. She was a self-assured young woman who had one child at home. She reported using
epidural anesthesia in her last labor which was about 24 hours long and was "not as difficult as it could have been." L. was a ready subject, maintaining a steady trance state through many interruptions. She used the technique at home and reported increased ability to experience peaceful sleep. This patient went into labor during her last clinic visit and appeared calm and relaxed. Medical staff reported some surprise at her state of relaxation through her steadily progressing labor. She was admitted to the hospital at 6 cm, and her labor lasted a total of 10 hours. She delivered a 3420 gram infant with apgars of 9 and 9 without anesthesia. Postpartum reports indicated good mother infant bonding.

6. B. was a 16-year-old, single, white female who came to prenatal care in her 23rd week of pregnancy. B. was a bright, attractive young woman who planned to go back to school after the birth of her child. B. had a supportive relationship with the baby's father and he planned to attend the birth. At the time of the study, she was living with the father of the baby and his family in what appeared to be an emotionally supportive atmosphere. B. was an excellent subject, maintaining a trance state through several unexpected interruptions. Her visual imagery of the birth process was particularly vivid and she reported imagining the whole experience as surrounded by a healthy pink glow. The baby's father was a silent observer in the third
session, watching B. place herself in the trance state. He was given literature on the birth process and a flier for expectant fathers explaining the stages of labor. This patient entered the hospital at 4 cm dilatation and delivered after a labor of 10 hours and 35 minutes. The father of the baby was present at the birth which was accomplished with epidural analgesia. Her baby weighed 3600 grams and had apgars of 9 and 9. Her labor and delivery was uncomplicated and her postpartum course was uneventful.

7. M. is a 16-year-old, single, black mother with a 16-month-old child at home. M. had an 11th grade education and was employed full time at the time of the study. She lived with her mother who provided child care and forbade M. to use contraception. Though initially somewhat skeptical about the technique, M. appeared to be a good subject. After the third session she reported using the technique at work during her breaks to reduce fatigue and demonstrated it to her mother who planned to be present at the birth. This patient entered the hospital at 6 cm dilatation, had a labor of 6 hours and 35 minutes, and delivered her child without anesthesia. Her mother was present during her uncomplicated labor and delivery. Her infant had apgars of 9 and 10 and weighed 3610 grams. Her postpartum course was uneventful. At her first postpartum clinic visit, she requested and was given an intrauterine device for contraception.
8. T. was a single, black female, 18 years of age and pregnant for the first time. She had a 12th grade education and was employed full time. T. appeared somewhat distrustful of the clinic's medical personnel. She was an attractive young woman and appeared to be a good subject, relaxing undisturbed through several interruptions. She reported practicing the technique at home or at work during the last weeks of her pregnancy. T. entered the hospital in her 40th week at 6 centimeters dilatation. She experienced a labor of 5 hours and 48 minutes and produced an infant weighing 3090 grams with apgars of 8 and 9. She completed labor and delivery without anesthesia. Her postpartum course was uneventful.

9. J. was a 16-year-old, single, white female. She was noted to have a minimal family support system and difficulty in meeting basic needs. A quiet, shy, young woman, J. stated that she didn't know what to expect during her pregnancy or labor and delivery. An excellent subject for treatment, J. maintained a trance state through numerous interruptions. She expressed some fears initially about labor and delivery which appeared to be reduced in later sessions. J. entered the hospital at 4 cm dilatation and delivered in 11 hours and 8 minutes without anesthesia. Her infant received apgars of 9 and 9 and weighed 3450 grams. Her labor was accompanied by multiple variable
decelerations. Her postpartum course was without complications.

10. B. was a 15-year-old, single, black primipara. B. had an eighth grade education and was physically and sexually abused as a child. She was poorly motivated to attend prenatal appointments and demonstrated a poor understanding of her nutritional needs. B. lived with her sister and her sister's three children for whom she did child care. B. was an attractive young woman, and reported being pleased about this pregnancy. She was told by her sister and other female relatives that labor is "as bad as pain can get." She was a good hypnotic subject, developing a trance in the presence of her 5-year-old nephew and reported practicing the technique at home. This patient entered the hospital at 5 cm dilatation, experienced a labor of 15 hours and 30 minutes and delivered with epidural analgesia. She delivered an infant weighing 3860 grams with apgars of 9 and 9. The delivery was complicated by multiple variable decelerations. Her sister was present at the birth and her postpartum course was uneventful.

11. J. was an 18-year-old, single, white primipara, randomly selected for the study and identified by the nursing staff as in need of support as evidenced by her passivity in her medical treatment and her inability to maintain eye contact. J. was a rather slim young woman in spite of her pregnancy with extremely bucked teeth. Her
relationship with the father of the baby had been physically abusive. He had recently moved and was now out of the picture. She spoke in a barely audible whisper. J. reported that her older brother had used "relaxation" for stress and that she would like to use the technique for her delivery. She was an excellent subject, reaching a moderate level of trance on the first induction as evidenced by her deep breathing and lack of muscle tension in her face and hands. She appeared to grasp the mechanics of childbirth and reported that the technique was "fun." Feedback from the medical staff indicated a marked improvement in the patient's manner. She began to actively participate in her medical treatment and initiated contact with social service agencies that would be potential resources after her baby was born. J. developed particularly vivid imagery, drawing from scenes from her childhood and adopted the technique to enhance her feelings of self-confidence and well-being. This patient entered the hospital dilated at 6 cm, and delivered her baby in an hour and 25 minutes without anesthesia. Apgars for her baby were 8 and 9 and the birth weight was 4230. There were no complications during labor and delivery and her postpartum course was uneventful. In a follow-up conversation J. noted that she was continuing to use the hypnosis not only for pregnancy related issues, but to help her "feel good about herself." Following her
delivery she arranged to qualify for extensive dental care, including braces for her front teeth.

12. E. was a 16-year-old, single, black female with a child at home less than a year old. Her previous labor was over 40 hours long. She finally delivered with epidural anesthesia. E. expressed a great deal of fear that this labor would be equally as hard, and that this time she would have no support as the baby's father had abandoned her. E. appeared to be a difficult subject with a short attention span. She seemed rushed to leave the sessions and expressed the hope that this would be her last pregnancy. E. entered the hospital at 4 cm dilatation and delivered her baby in 23 hours and 51 minutes. She received 1 mg of stadol during her labor which was complicated by multiple variable decelerations. Her infant had apgars of 8 and 9 and weighed 3180 grams. Her postpartum course was uneventful and she was reportedly well bonded with her infant.

13. L. was a 16-year-old, married, primagravida. She was frequently accompanied to her clinic visits by her husband and they both expressed excitement and pleasure about the coming baby. L. was a good hypnotic subject as evidenced by deep breathing and relaxed muscle tone. L. reported practicing the technique at home in order to get to sleep, but expressed concern about her ability to go through labor "without help" (anesthesia). She entered the hospital in her 41st week at 6 centimeters dilatation. She
had a labor of 12 hours and 7 minutes and produced an infant weighing 3580 grams with apgars of 7 and 9. She requested and was given an epidural and her labor was complicated by a prolonged second stage. Her postpartum course was uneventful. At her first postpartum visit L. reported using the technique to get back to sleep after nightly breast feedings.

14. M. is an 18-year-old, single, black primigravida who entered prenatal care at 24 weeks gestation. M. reported ambivalent feelings about the pregnancy and conflict with her family who wanted her to stay in school. M. was abandoned by the baby's father and reported being terrified of labor and the pain involved. She appeared to be a good subject, relaxing through interruptions and by the third session her anxiety seemed to have dissipated markedly. This patient entered the hospital at 3 cm dilatation and delivered after a labor of 11 hours and 5 minutes without anesthesia. Her baby had apgars of 6 and 9 and weighed 3240 grams. Her labor was complicated by multiple variable decelerations and extended fetal bradycardia. Her postpartum course was uneventful.

15. D. was a 17-year-old, multigravida. She was pregnant for the second time and was divorced from the baby's father. Her first child was born prematurely at 28 weeks, and was at the time of the study a healthy 2 1/2-year-old. D. was having problems with the baby's father and his
family, but had decided to live with her mother until the baby arrived. She was an excellent subject, reaching a deep state of trance as evidenced by lack of muscle tone and deep breathing. She reported practicing at home though she was "unable to relax much with a 2 1/2-year-old." This child was present during one induction and became quiet and relaxed while D. went into trance. D. expressed concern about having another premature birth and would "try to make it to 36 weeks." D. was sent to the hospital by the Health Department staff during her 34th week for premature cervical dilatation without contractions. She was observed for 2 days, given complete bedrest and IV hydration. During her hospitalization no cervical changes or contractions occurred. D. re-entered the hospital during her 41st week at 7 cm dilatation and delivered an infant weighting 3180 grams, with apgars of 8 and 9 after a 14 hour and 27 minute labor. She had no anesthesia and no complications during her labor or delivery. Her postpartum course was uneventful.

16. D. was a 15-year-old, single, white female, pregnant for the first time. She was accompanied to her clinic visits by her mother. D. was receptive to learning the technique and showed interest in understanding the mechanics of child birth. Her imagery was characterized by vivid colors and a sense of weightlessness. During the course of her prenatal care she witnessed a car accident and
used the technique to calm herself during numerous court appearances. She presented herself at the hospital during her 40th week at 8 cm dilatation. After a labor of 16 hours and 4 minutes she produced an infant weighting 3240 grams with apgars of 9 and 9. Her mother was present at the birth which was accomplished without anesthesia.

17. M. was a 16-year-old, married, white female pregnant for the first time. She expressed some ambivalence about this pregnancy as it had been unplanned. Though she experienced some harassment and a sense of alienation, she chose to remain in her high school while pregnant in order to graduate with her class. She was a shy somewhat sullen young woman. She was a good subject, developing detailed imagery during the trance state. She reported using the technique when stressed by marital problems. M. entered the hospital at 40 weeks gestation dilated to 8 centimeters. After a labor of 6 hours and 20 minutes she delivered an infant weighing 3640 grams with apgars of 9 and 10. Her labor was uncomplicated and accomplished without anesthesia. Her postpartum course was uneventful. A postpartum follow up revealed that she was well bonded with the infant and would graduate from high school with her classmates in a few weeks.

18. M. was a 16-year-old, single, white primipara, pregnant with a bi-racial infant. M.'s well-to-do family from another part of the state reacted strongly to M.'s
pregnancy and sent her to Gainesville to live with the baby's father's family. M. reported feeling rejected by her mother and expressed anxiety about labor and fear of "having to do it alone." She appeared to be a good subject, maintaining a trance state through numerous disturbances. At 26 weeks she was thought to be in premature labor as clinicians noted her cervix to be 40% effaced and 1 cm dilated. This episode corresponded with a particularly difficult visit from her mother. Medical staff prescribed complete bed rest and referred her for her third hypnotic session. During this session it was suggested that she imagine her cervix as long, thick and closed and her labor beginning within a few days of her expected delivery date. When M. returned to the clinic a week later a marked difference was noted. Her cervix was closed and there were no signs of premature labor. This patient entered the hospital in her 38th week at 5 cm dilatation and delivered her infant in 8 hours of labor. Medical records report that she was accompanied through labor and delivery by her mother and the baby's father. She requested and was administered an epidural. Her infant weighed 3010 grams with apgars of 8 and 9. Her labor had a prolonged second stage but was otherwise uncomplicated. A postpartum report indicated that she was breast-feeding and well bonded with the infant.

19. A. was a 16-year-old, single, black primigravida. A. had a tumultuous relationship with the baby's father and
was isolated from her family who lived in the Carribean. She was an articulate young woman, eager to learn the technique and motivated to "do a good job with this birth so my mother will be proud of me." She entered the hospital during her 38th week at 4 centimeters dilatation and produced an infant weighing 3400 grams with apgars of 7 and 9.5. Her labor lasted 25 hours and 33 minutes. She requested and was given an epidural. Her labor was complicated by secondary arrest dilatation, multiple late decelerations and meconium stained fluid. Her postpartum course was uneventful.

20. S. was a 16-year-old, single, black primigravida. S. expressed fear and anxiety about labor and delivery initially, but appeared to gain in confidence as her pregnancy progressed. S. was a compliant subject who entered the hospital at 4 cm dilatation and delivered in 13 hours and 30 minutes under 1 mg of Stadol for analgesia. Her infant received apgars of 9 and 9 and weighed 2800 grams. Her labor was accompanied by extended fetal bradycardia. She developed a urinary tract infection, was treated with ampicillin and discharged.

21. L. was an 18-year-old, single, black primigravida with a 12th grade education. She expressed excitement about the coming baby. Her family and the baby's father were supportive of this pregnancy and she appeared confident. She was a ready subject, with most of her sensory imagery
being auditory. She appeared deeply relaxed despite interruptions. L. presented herself at the hospital at 40 weeks gestation and 6 centimeters dilated. After a labor of 3 hours and 9 minutes she produced an infant weighing 2920 grams with apgars of 7 and 8. Labor was accomplished without anesthesia and without complications of any kind. Her postpartum course was uneventful.

22. T. was an 18-year-old, married, white female. A somewhat slow and seemingly shy young woman, T. was receptive to learning the technique and reported wanting an unmedicated birth. T. believed that labor would be hard, but that she expected to do a good job. Her husband frequently accompanied her to clinic visits and planned to be present at the birth. T. was a good subject and maintained a trance state throughout disturbances. She reported vivid imagery. Her husband reported observing T. practicing at home and that she was using the technique to get to sleep. T. was a chronic smoker and was aware of the health risks of cigarette smoking to her infant. Though she was unable to quit smoking altogether, she used hypnosis to help her cut back from 2 1/2 packs of cigarettes per day to 1 pack. T. was admitted to the hospital at 6 cm dilatation and delivered without anesthesia after a labor of 8 hours and 56 minutes. Her labor was accompanied by multiple variable decelerations and her infant, who weighed 2660 received apgars of 6 and 6. He was placed in the Neonatal
Intensive Care Unit for observation. T.'s postpartum course was uneventful.

**Hypnotic Subjects Who Did Not Complete the Protocol**

1. S. was a single, black primipara who had trouble keeping clinic appointments because of transportation problems. She completed two of four sessions. In her 38th week, she labored at home for 10 hours and 56 minutes, then entered the hospital completely dilated and ready to deliver. She received no anesthesia, her baby weighed 2550 grams with apgars of 9 and 9 and her postpartum course was uneventful.

2. E. was an 18-year-old, single, black mother who completed two of four sessions. She entered the hospital in her 41st week at 4 cm dilatation. Her labor lasted 19 hours and 42 minutes and produced an infant weighing 3390 grams with apgars of 9 and 9. Her delivery was complicated by thick meconium stained fluid and was accomplished without anesthesia. Her postpartum course was uneventful.
APPENDIX E
CASE NOTES ON THE SUPPORTIVE COUNSELING SUBJECTS

1. C. was a 17-year-old, married, white female. Initially, C. appeared hostile and unreceptive to information on childbirth. By the second session she appeared more interested and expressed her understanding of the material presented. She denied fear of childbirth and appeared confident that she would not need anesthesia. C. entered the hospital at 40 weeks gestation and 2 centimeters dilated. In 24 hours and 15 minutes she produced a 3600 gram infant with apgars of 6 and 9. She requested and was given an epidural for analgesia. Her labor was complicated by multiple variable decelerations and meconium stained fluid. Medical records indicate that she was well bonded to the infant and successfully breast feeding. Her postpartum course was uneventful.

2. A. was a 15-year-old, single, black primigravida. She was accompanied to her clinic visits by her mother who planned to attend the birth. This patient appeared shy and quiet, but maintained eye contact, and appeared interested throughout the sessions. After requesting further information on unmedicated childbirth this patient decided that she "couldn't go through it." Availability of anesthesia was discussed, and epidural was chosen. This
patient presented herself at the hospital in her 39th week at 4 centimeters dilatation. After a labor of 4 hours and 15 minutes she produced an infant weighing 2940 grams with apgars of 9 and 10. Her labor was complicated by terminal fetal bradycardia and multiple late decelerations. She had a vacuum assisted delivery. Despite her previous decision, the delivery was accomplished without anesthesia. Her postpartum course was uneventful.

3. S. was a 17-year-old, single, white primigravida. This patient appeared very interested in the sessions and verbalized understanding of the material being presented. She expressed excitement about the coming child and seemed to be emotionally supported by her sister and the baby's father. This patient stated that she didn't want a "natural" birth. Her sister had had an epidural and she wanted one too. Risks and benefits of anesthesia and analgesia were discussed. S. entered the hospital at 5 centimeters dilatation and 40 weeks gestation. After a labor of 32 hours and 10 minutes she produced an infant weighing 4130 grams and apgars of 2, 5, and 7 at one, five, and fifteen minutes, respectively. During this process she received 25 mg of phenergan and 2 mg of stadol, plus an epidural for relief of pain. Her labor was complicated by secondary arrest of labor, prolonged second stage, multiple variable decelerations and meconium stained fluid. The baby was presenting in a persistent occiput posterior position.
A vacuum assisted low-forceps delivery was indicated. Her infant went to Neonatal Intensive Care nursery. Her postpartum course was uneventful.

4. B. was a single, black primigravida who had recently finished high school. She was a shy, heavy set young woman who reported having good rapport with the baby's father and with her family who were looking forward to the birth of her child. She was cooperative and articulate during the teaching sessions and verbalized understanding of the materials being presented. She stated her desire to have a medication free birth. B. entered the hospital in her 41st week. She had an uncomplicated labor of 7 hours and 40 minutes and delivered an infant weighing 2980 grams with apgars of 9 and 9.5 without anesthesia. The baby's father was present at the birth and was reportedly very supportive. The baby was diagnosed as macrosomatic, but was otherwise healthy and in good condition. B. was reportedly well bonded with her infant and her postpartum course was uneventful.

5. E. was a 17-year-old, single, black primigravida. E. was a ready subject, appearing very interested in the material being presented, maintaining eye contact and participating in the teaching sessions. She was very interested in breast feeding but stated she wanted an epidural for labor and delivery. This patient was hospitalized for premature labor at 32 weeks, given
ritodrine, and released. She was placed on complete bedrest with home health care. She entered the hospital again at 41 weeks, dilated to 3 centimeters. Her labor was complicated by secondary arrest dilatation, fetal acidosis, multiple variable decelerations, extended fetal bradycardia and meconium stained fluid. A primary low transverse Cesarian section was indicated and accomplished under epidural anesthesia. An infant weighing 3620 grams with apgars of 5 and 8 was produced. The infant was taken to the neonatal intensive care nursery. E. developed a postpartum infection and was released after a hospital stay of 6 days.

6. M. a 17-year-old, single, black female pregnant for the second time. Her 1 1/2-year-old daughter accompanied her to most clinic visits and was a distracting influence on most of the sessions. M. appeared to be a slow learner and poor historian as evidenced by her inability to remember relevant information about her past, or articulate information presented to her. She verbalized an understanding of the mechanics of childbirth through her previous birth. She entered the hospital during her 42 week at 4 centimeters dilatation. After a labor of 12 hours and 52 minutes she produced an infant weighing 3860 grams with apgars of 8 and 9. Her labor was complicated by multiple variable decelerations and meconium stained fluid. She did not receive any anesthesia, and her postpartum course was uneventful.
7. E. was a 17-year-old, single, black female pregnant for the first time. E.'s mother frequently accompanied her to her clinic visits. Both of them appeared excited about the coming birth. E. appeared very interested in the material being presented and participated in the discussion. E.'s mother reported having had an easy labor with E. and E. expressed belief that her own labor "won't be so bad." E. expressed a desire to have an unmedicated, or "natural" birth. E. appeared to be receptive to all teachings and was looking forward to labor and delivery. E. entered the hospital during her 40th week at 4 centimeters dilatation. Her first stage of labor had progressed for about 6 hours when meconium stained fluid was noted. A fetal monitor was placed on her abdomen and she received an epidural for anesthesia. She experienced secondary arrest of dilatation and some degree of fetal distress was noted. A primary low transverse Cesarian Section was preformed under general anesthesia which produced an exceptionally large infant weighing 4980 grams with apgars of 8 and 9. E. was released after a hospital stay of 5 days but was readmitted for postpartum eclampsia. E. was reportedly well bonded with her infant.

8. L. was an 18-year-old, married, white female with one child at home. Her previous labor had been premature and she had experienced a painful forceps delivery. L. expressed a desire to have a "natural" birth this time if at
all possible and she appeared very attentive during the sessions. She entered the hospital at 8 centimeters dilatation during her 40th week and had a labor of 3 hours and 25 minutes. She produced an infant weighing 3390 grams with apgars of 9 and 9. She experienced terminal bradycardia and had a vacumm assisted delivery without anesthesia. Her postpartum course was uneventful.

9. L. was a single, black female, 17 years of age, and pregnant for the second time. Her first infant had been delivered by a Cesarian section due to failure of her labor to progress and she expressed a desire to deliver vaginally this time. She appeared interested in the sessions, and the baby’s father planned to attend the birth. L. had not gone into labor by her 42 week and was given a stress test to determine her uterus' ability to tolerate contractions. Low fetal movement had been noted and the results of the test were suspicious. Her labor was induced and a low transverse Cesarian section was performed under general anesthesia after failure to progress. Her infant weighed 3330 grams and had apgars of 7 and 9. Fetal arrhythmia was noted. She was discharged from the hospital on the fourth day postpartum.

10. K. was an 18-year-old, single, black female pregnant for the first time. She was a shy and seemingly slow young woman who appeared very interested in the material being presented. She stated that she had never
talked to anyone about having babies and was totally naive about the birth process. The father of the baby and her mother planned to be present at the birth. This young woman entered the hospital in her 40th week at 10 centimeters dilatation ready to deliver. Her labor was a total of 11 hours and 29 minutes and she had a standard vaginal delivery without anesthesia or analgesia. Her baby weighed 3020 grams and had apgars of 9 and 9.5. Her postpartum course was uneventful.

11. J. was an 18-year-old, single, black female with one child at home. Her last labor lasted for five hours. This young woman appeared very excited about her pregnancy and expressed the desire to have an unmedicated birth. She was receptive to information presented and verbalized understanding. In her 40th week she entered the hospital at 6 centimeters. She experienced a labor of 5 hours and 19 minutes and produced an infant weighing 3120 grams, with apgars of 9 and 9. Her labor and delivery were complicated by a prolonged second stage and decreased fetal heart tone variability. She delivered without anesthesia. Her postpartum course was uneventful.

12. G. was a 16-year-old, married, white female pregnant for the second time. Her first child was delivered prematurely at 32 weeks after a labor of two hours and was at the time of the study a healthy 2-year-old. G. was experiencing marital problems during this pregnancy. She
expressed a desire for anesthesia during her birth. She expressed interest in the material presented and participated in the sessions. G. entered the hospital at 9 centimeters dilatation in her 40th week. There was a vague history of rupture of membranes approximately 24 hours before presentation. Examination revealed that the baby was in a frank breech presentation. She was admitted in anticipation of a possible vaginal breech delivery; however clinical pelvimetry revealed a probable inadequate pelvis. A primary low transverse Cesarean Section was performed under general anesthesia. An infant weighing 2870 grams with apgars of 9 and 9 was delivered. The patient was afebrile and discharged home on the 5th post-operative day.

13. A. was an 18-year-old, single, black primigravida who lived with her grandparents. This patient stated that she wanted some kind of pain medication during labor and delivery, though she was not sure what kind she wanted. She was very interested in breast feeding. A. entered the hospital during her 39th week at 4 centimeters dilatation. She had a labor of 31 hours and 32 minutes and produced an infant weighing 3210 grams with apgars of 7 and 9. Her labor was complicated by meconium stained fluid and multiple variable decelerations. She received 25 miligrams of phenergan and 2 miligrams of stadol. Her postpartum course was uneventful.
14. D. was an 18-year-old, single, white primigravida who lived with the baby's father and had been raising his two children. He accompanied her to most clinic visits and both of them were excited about the new baby. D. was concerned about how to prepare the other two children at home for the new infant. She expressed confidence in her body's ability to have a baby and appeared to be looking forward to her delivery. She entered the hospital in her 41st week at 4 centimeters dilatation. She had a labor of 17 hours and 55 minutes and delivered an infant weighing 3040 grams with apgars of 6 and 9. Her delivery was complicated by meconium stained fluid and multiple variable decelerations. She received an epidural for relief of pain. The baby's father was present at the birth. Her postpartum course was uneventful.

15. A. was an 18-year-old, single, black female who began her prenatal care in her 24th week. This was her second pregnancy. Her labor was induced at 30 weeks in her previous pregnancy because of pre-eclampsia and she produced a 5 pound, 9 ounce infant with stadol and phenergan for analgesia. This child was three years old at the time of the study. A. stated that she wanted a "natural" birth this time, without medications and appeared interested and involved. This patient entered the hospital in her 40th week at 2 centimeters dilatation. She was febrile with intact membranes and diagnosed as probably having
chorioamnionitis. Intravenous antibiotics were administered. Fetopelvic disproportion was suspected when the infant failed to descend. Examination revealed the infant's head to be in left occiput transverse position. She experienced secondary arrest of labor, multiple variable decelerations, multiple late decelerations, extended fetal bradycardia, and meconium stained fluid. An emergency low transverse Cesarean section with uterine extension was performed under general anesthesia. An infant weighing 4560 grams was produced with apgars of 3, 7 and 8 at one, five and ten minutes, respectively. The child's head had significant moulding and there had been occult cord prolapse. He was taken to neonatal intensive care. A. was released on the fifth post-operative day.

16. D. was a 14-year-old, single, black female. She appeared very interested in obtaining information about what to expect during labor and delivery. She had been given much information about pregnancy, labor, and delivery by female relatives and expressed fear of labor. Her fear appeared to reduce over time and she reported her thoughts that labor might not be too painful because of a family history of easy labors. She had observed a birth previously and stated that her greatest fear was that she would scream. This patient appeared very much in control and vasculated between being afraid and having confidence. Her mother and the baby's father planned to attend the birth. This patient
entered the hospital in her 40th week at 5 centimeters dilatation. She had a labor of 13 hours and 30 minutes, and produced an infant weighing 3540 grams with apgars of 9 and 9. Her labor was complicated by a prolonged second stage. She received 2 mg. of stadol and then requested and received an epidural for anesthesia. Her mother and the baby's father were present at the birth. Her postpartum course was uneventful.

17. K. was a 17-year-old, recently married, white female with good emotional support from her husband and family for this pregnancy. She stated her understanding of the material being presented and appeared more excited about the pregnancy as her due date approached. During her 39th week of pregnancy she was involved in a motor vehicle accident which resulted in her admission to the emergency room at the hospital. She had a large raised bruised area on her forehead and several orthopedic injuries including a severe laceration of the knee and a broken tibia. She was disoriented to time and place, but was responsive to questioning. X-rays revealed only superficial head injuries. No abdominal injuries were sustained. She was monitored for fetal distress and was noted to have fetal bradycardia and multiple late decelerations. Her membranes were artificially ruptured and she was noted to have meconium stained fluid. A primary low transverse Cesarean section was performed under general anesthesia which
produced an infant of 3350 grams with apgars of 5 and 9. The infant was taken to Neonatal Intensive Care for hyperinflated lungs and observed for 2 days. While under general anesthesia, K's knee was braced and her leg set. She reportedly recovered quickly from the surgery and showed interest in breast feeding. She and her infant were released on the sixth post-operative day.

18. C. was a 14-year-old, single, black female pregnant for the second time. Her previous labor was 11 hours and was a spontaneous vaginal delivery without anesthesia. C.'s current pregnancy was an undesired pregnancy and her parents strongly disapproved of her continued fertility. She was living with her sister who was emotionally supportive. C. was a shy, quiet, young woman who showed her interest in the sessions by her alert attention. C. went into labor in her 38th week and entered the hospital at 4 centimeters dilated. She experienced a labor of 14 hours and 59 minutes and delivered an infant weighing 3540 grams with apgars of 9 and 9. She had a spontaneous vaginal delivery with epidural analgesia. Her labor and delivery were uncomplicated and her postpartum course was uneventful.

19. M. was an 18-year-old, single, black primipara. M. appeared very interested in the sessions and excited about this pregnancy. Her mother was planning to attend the birth as her relationship with the baby's father had
deteriorated. She verbalized understanding of the materials being presented and asked questions about formula feeding, as well as the baby's father's legal and moral rights. M. went into labor at 40 weeks and presented herself at the hospital at 4 centimeters dilatation. On examination the baby was discovered to be in a footling breech presentation and meconium stained fluid was noted. An emergency primary low transverse Cesarian section was performed under general anesthesia. An infant weighing 2760 grams was produced with apgars of 5, 6 and 7 at ten minutes. The baby was noted to have a fractured right femur, to be very "floppy," with extended feet, and with minimal mobility of the lower extremities. He was taken to the neonatal intensive care unit. M.'s postpartum course was uneventful. She was released on the 5th post-operative day.

20. B. was an 18-year-old, single, black primigravida who recently finished high school. She appeared very receptive and actively participated in the teaching sessions. She reported having a good relationship with the father of the baby and expressed a desire for his presence at the birth. B.'s mother had delivered several of her children at home with a midwife and B. expressed a strong desire to have a "natural" childbirth. During her 42nd week she was admitted to the hospital for decreased fetal movement. Her labor was induced and she was noted to have decreased fetal heart rate variability. A primary low
transverse Cesarean section was performed under general anesthesia. An infant weighing 3260 grams was produced with apgars of 9 and 9. The baby's father was present during the delivery and B.'s post-operative course was uneventful.

Supportive Counseling Subjects Who Did Not Complete the Protocol

1. L. was a 15-year-old, separated, white primigravida. She completed two of four sessions. A sonogram at 26 weeks revealed fetal gastroshesis and a Cesarean section was planned. She went into premature labor at 35 weeks and had premature rupture of the membranes. A primary low transverse Cesarean section was performed under general anesthesia. An infant weighing 2440 grams with apgars of 7 and 7 was delivered and taken to Neonatal Intensive Care. Her post-operative course was uneventful.

2. W. was a 17-year-old, single, black primigravida who had problems getting transportation to the clinic. She completed two of four sessions. She went into labor in her 39th week and entered the hospital at 3 cm dilatation. She labored for 16 and 1/2 hours and produced an infant weighing 2430 grams. Apgars were 6 and 8. Her labor was complicated by mild preeclampsia, fetal bradycardia, secondary arrest of dilatation, fetal tachycardia, and vacuumme extraction. She received an epidural for analgesia. Her postpartum course was uneventful.
3. T. was a 16-year-old, single, black primigravida who began prenatal care at 23 weeks gestation. T. was unhappy about this pregnancy as it was unplanned, and was receiving no support from her family or the baby's father. She had completed two sessions when she failed to appear for her next clinic appointment. A social work follow-up revealed that she had left the state.
REFERENCES


BIOGRAPHICAL SKETCH

Alice Ann Martin was born on September 30, 1949, in Tarboro, North Carolina. Her formative years were spent in New Orleans, Louisiana, and Hollywood, Florida, where she graduated from McArthur High School in 1967.

She attended Presbyterian College, Clinton, South Carolina; Temple University, Philadelphia, Pennsylvania; and the University of Florida, Gainesville, Florida, and received a Bachelor of Arts degree in anthropology and psychology in 1971. She lived and worked in the Bavarian region of Germany for several years, then returned to the United States to earn a Master of Education degree from the University of Washington in Seattle, Washington, in 1977.

She held the position of Executive Director of Planned Parenthood of North Central Florida in Gainesville, Florida, from 1977 to 1979, then enrolled in the University of Florida counselor education doctoral program.

During her graduate studies she had the opportunity to hold a position as instructor at Santa Fe Community College and to coordinate and help develop the Life Skills Program and the Program for Incarcerated Women. She has participated in research at Shands Teaching Hospital using hypnosis with mothers at risk for premature delivery and
served as a consultant at the Birth Center, an out-of-hospital birthing facility, in Gainesville, Florida.

Alice is a Licensed Marriage and Family Therapist, a clinical member of the American Association of Marriage and Family Therapists, a member of the American Association for Counseling and Development, and the Southeastern Psychological Association. She is currently in private practice in Gainesville, Florida.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Rod M. Davis
Chairperson
Professor of Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Paul Schauble
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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