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Bernal Guzmán, Maria del Pilar

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The Effect of the Presence of a Supportive Significant Other
During Labor and Delivery on Pregnant Women's Anxiety
and Overall Progress of Labor

by

María del Pilar Bernal Guzmán

THESIS

Submitted in partial satisfaction of the requirements for the degree of

MASTER OF SCIENCE

in

Nursing

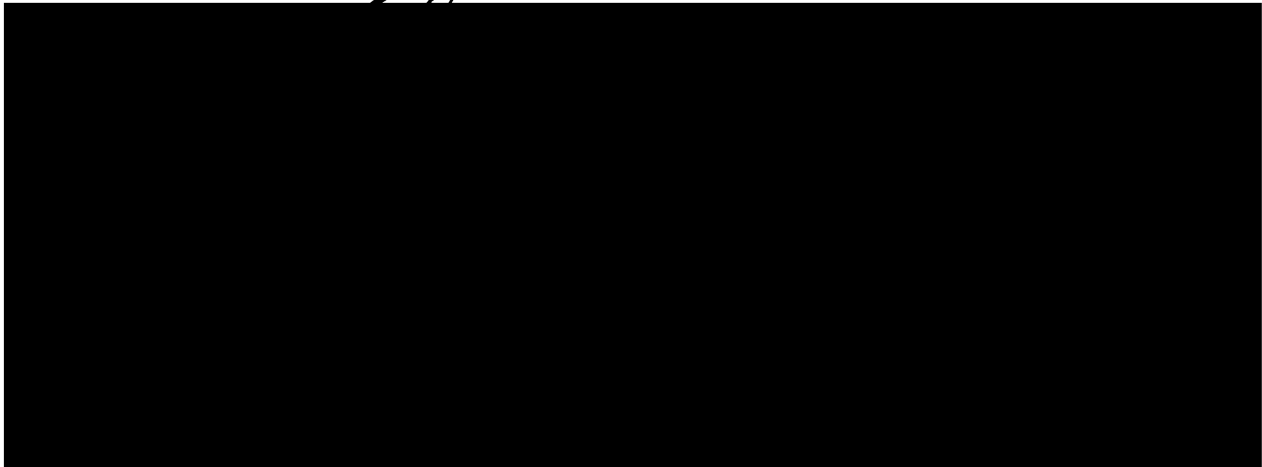
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CHAPTER 1

THE PROBLEM

Perinatal complications during labor and delivery account for a high rate of morbidity and mortality in mothers and infants in Colombia, South America (Ministerio de Salud, 1984). In 1981 the second leading cause of specific mortality in women 15-44 years old was complications during pregnancy, labor and delivery, and the postpartum period. The first cause of infant mortality, in the same year, was classified as perinatal disease, and the fourth cause was classified as anoxic and hypoxic conditions.

In part, high perinatal morbidity and mortality in Colombia may be explained by the context in which childbirth occurs there. In Colombia some women admitted to the labor unit never have had a prenatal visit, nor any childbirth preparation. Most of them labor alone in busy hospitals or in primary care hospitals where health care providers give very little emotional support. It is reasonable to suggest that the lack of prenatal preparation and emotional support can aggravate the anxiety that already is present during labor and delivery, and that this increased anxiety may have negative effects on perinatal outcome. Lederman, Lederman, Work, and McCann (1979, 1981) have found a relationship between maternal anxiety, progress of labor, and health status of the fetus and newborn. However, very few research reports have appeared in the literature to date that examine the effects of a supporting companion on the progress of labor and perinatal problems, despite the fact that there is evidence suggesting a relationship between anxiety, arrest of labor, and fetal distress (Sosa, Kennell,

Klaus, Robertson, & Urrutia, 1980; Klaus, Kennell, Robertson, & Sosa, 1986). These studies were conducted in Central America and raised the possibility that the presence of a supportive companion during labor may enhance perinatal outcomes. Although related research findings presented in this proposal are based on studies of populations quite different than childbearing women in Colombia, studies using similar populations, if they exist, are difficult or impossible to access in the scientific literature. The findings of Sosa et al. (1980, 1986) suggest that a partial replication of their study might be valuable. Therefore, the proposed study will focus on this question: Can the presence of a supportive significant other reduce maternal anxiety during labor and delivery, and thus have a beneficial impact on perinatal outcome?

Purpose and Statement of the Problem

The purpose of this study is to determine the relationship between the presence of a supportive significant other during labor and delivery, maternal anxiety levels, and perinatal outcome. In an experimental research design, with a final sample of 249 pregnant women in the control group without a companion and 168 pregnant women in the experimental group with a companion, Kennell, Klaus, Robertson, and Sosa (1986) studied the effects of social support during parturition on maternal and infant morbidity. This study was a replication and an extension of the results from a previous study (Sosa et al, 1980) with a similar population, in which continuous support was unexpectedly found to reduce the duration of labor from 19.3 to 8.7 hours and to decrease the prevalence of overall perinatal complications from 76% to 37%.

It is important to point out that the conditions of the settings and the cultural background of the women in the studies cited above are

very similar to those in Colombia. Their findings in the most recent research report show also that the mothers in the experimental group (with the supportive companion) developed fewer problems during labor ($P \leq 0.001$) and had a shorter labor ($P \leq 0.001$) than those mothers from the control group (without the supportive companion).

The health of the two groups of infants at birth also differed, although this difference was not statistically significant. More infants of the mothers in the control group were transferred to a neonatal intensive care unit than infants of mothers with a supportive companion ($P = 0.07$). The authors were cautious in their interpretation of these results because of the small sample size and the lack of other facilities for closely observing transitional problems of the neonate. The researchers suggest, as they did in the first research report, an association between high anxiety levels and progress of labor. This argument is based, in part, on the proposition that a lengthy labor or a period of little progress after active labor has begun, tends to increase fatigue, frustration, and anxiety in the pregnant woman. It is possible that the consequences go beyond this event, not only risking the health of the mother and child, but also interfering with the establishment of parent-infant interaction.

Significance

If the presence of a significant other can reduce anxiety, and as a result decrease perinatal complications, the mother, the child and the family will benefit. Allowing for the presence of a supportive companion in labor is essentially a risk-free intervention, one that can be done with very little additional cost. It is also an appropriate use of technology for the developing countries including Colombia, since it

is of great importance to use available resources to improve perinatal outcome. Given that perinatal morbidity and mortality are of major concern in Colombia, testing of such "low-tech" interventions is especially urgent.

Further, this study can help to establish family-centered birth practices within the health care centers in Colombia where childbirth care could benefit from a more humane orientation; such practices will encourage closer participation of the family, particularly the father, not only during the birthing process, but throughout the childbearing and childrearing stages.

Aims of the Study

The following are the primary aims of this study:

1. To determine if the presence of a supportive significant other during labor and delivery will decrease maternal anxiety during labor.
2. To determine if the presence of a supportive significant other during labor and delivery will decrease perinatal problems as measured by the overall progress of labor and neonatal 5 minute Apgar scores.

In addition, the following are secondary aims of this study:

3. To determine if the presence of a supportive significant other during labor and delivery will have a beneficial effect on the fetal status during labor and delivery, as noted by the absence of clinical signs of fetal distress, i.e., fetal bradycardia, fetal tachycardia, or decelerations as noted by auscultation, or presence of meconium in the amniotic fluid.
4. To determine if the presence of a supportive significant other during labor and delivery will have an indirect benefit on the condition of the newborn during the first 24 hours of life (i.e., problems

requiring medical intervention, administration of O₂, heating with lamp, or requiring referral to another higher health center level).

5. To determine if the presence of a significant other during labor and delivery will benefit the maternal physiologic status during the first 24 hours of the postpartum period as reflected by the absence of problems requiring any medical intervention.

6. To compare the difference, if any, of the effect of the identity of the person the mother chooses as a supportive companion on the length of labor and maternal anxiety during labor.

7. To compare the perceptions that the women had from labor and delivery, when they were or were not accompanied during that period.

8. To identify the perceptions that the companions had from the experience of being with the mother throughout the labor and delivery.

9. To identify how the nursing personnel in charge of the mother's care during labor and delivery perceived the experience of the presence of a companion during labor and delivery.

Hypotheses

1. The presence of a supportive significant other during labor and delivery decreases maternal anxiety at those stages.

2. The presence of a supportive significant other during labor and delivery decreases perinatal complications (as measured by overall progress of labor and neonatal 5 minute Apgar scores).

CHAPTER 2

LITERATURE REVIEW

Review of the Literature

The effects of a supportive companion on the perinatal outcome has been scarcely addressed in scientific literature, other than the previously cited papers by Sosa et al. (1980) and Klaus et al. (1986). In the search of additional support for these findings, other areas related to this topic will be reviewed: anxiety and perinatal outcome, especially the presence of a significant other and perinatal outcome, and preparation for childbirth and perinatal outcome. In this section the relevant research reports on these topics are discussed.

Relationship Between Anxiety and Perinatal Outcome

In a prospective study with a convenience sample of 32 normal married primigravidas, 20 to 30 years of age, who received preparation with their husbands for labor and delivery, Lederman, Lederman, Work, and McCann (1978). examined the relationship between maternal anxiety and plasma epinephrine, norepinephrine and cortisol. Maternal anxiety was measured with the State measure of the Spielberger State Trait Anxiety Inventory at the onset of 3 defined phases during labor (1-2 cm, 3-5 cm and 10 cm of cervical dilatation). Plasma levels of catecholamines and cortisol were measured at 31 to 36 weeks of gestation and at the same phases during labor. Their findings showed a significant correlation between maternal anxiety during labor and elevation of plasma epinephrine, as well as an association of higher plasma epinephrine levels with lower uterine activity and longer duration of labor during the active phase of dilatation (3-5 cm to 10 cm of cervix dilatation).

With the same population and research design Lederman et al. (1979) report the relationship of psychological factors in pregnancy and progress of labor. Interviews in the last trimester of pregnancy were carried out to determine anxiety levels and specific psychological factors thought to affect perinatal status (quality of relationship with the husband, with the mother, acceptance of the pregnancy, identification with motherhood role, amount of preparation for labor, fears of pain in labor, helplessness, loss of control, loss of self-esteem, reproductive adequacy, and injury and death). Plasma catecholamines and cortisol were also measured during the last trimester to establish a baseline. The findings demonstrated that prenatal maternal conflict in the acceptance of pregnancy and motherhood role were predictive of the progress of labor. Thus, the work of Lederman et al. suggests that psychological factors, including prenatal and intrapartum anxiety, were found to be predictive of progress in labor.

In another study of 146 women 15 to 36 years of age, Crandon (1978) found not only a positive correlation between high maternal anxiety in the third trimester and poor progress of labor, but also a relationship between high anxiety during the third trimester of pregnancy and complications during labor. It is important to point out that the obstetric health status of the mothers in this sample were not described. This can be a threat to external validity since complications during labor could be due to the health status of the mother during pregnancy and not to high anxiety during this period. However, it may be reasonable to conclude that if maternal anxiety during pregnancy is related to abnormal labor and obstetric complications, maternal anxiety during labor can also be related to other types of perinatal problems.

Both Lederman et al. (1981) and Crandon (1978) report a correlation between high maternal anxiety at the onset of labor and worrisome fetal heart rate patterns, and higher maternal anxiety during pregnancy and low 5 minute Apgar scores. Again the finding from Crandon (1979) should be interpreted with caution since their results could be due to the sample characteristics and not to high anxiety alone. However, in Lederman et al. (1981) the sample was comprised of low-risk primigravidas and their findings were similar, indicating a relationship between increased anxiety and poorer newborn status.

Relationship Between the Presence of a Supportive Other in Labor and Perinatal Outcome

Further evidence suggests a relationship between anxiety and perinatal outcome indirectly by examining the effect of the presence of a supportive other during labor. Sosa, Kennel, Klaus, Robertson and Urrutia (1980) studied the effect of a supportive companion (doula) on the length of labor and mother-infant interaction in a sample of 20 uncomplicated primigravidas who had been randomly assigned to an experimental or control group.

This study evolved from a larger study in which they found that the mothers in the control group (without the doula) were more likely to have developed certain perinatal problems that required intervention during labor and delivery. On examination of a smaller subsample, they found that the mothers that had a supportive companion during labor and delivery had a shorter labor and were more awake after delivery, stroked, smiled and talked more to their babies than the group of the mothers without the companion.

Even though the investigators were not initially looking at the relationship between a supportive companion and incidence of perinatal problems, their findings showed a significant correlation between these two variables; specifically, they suggest that an association exists between acute anxiety in unsupported labor and arrest of labor or fetal distress.

The findings of this study were corroborated when Klaus, Kennell, Robertson, & Sosa (1986) replicated this research with a substantial duplication of the results. In a randomized control design they studied the effects of a supportive companion staying with the mother throughout labor on maternal and infant morbidity. There were 249 women in the control group (without the supportive companion) and 168 in the experimental group (with the supportive companion). The mothers in the experimental group developed fewer perinatal problems (i.e., Cesarean section and oxytocin augmentation, $P < 0.001$) and had shorter labors ($P < 0.001$) than mothers in the control group. Mothers with a supportive companion had a mean length of labor of 7.7 (3.5 SD) hours, whereas the women without support had a mean length of labor of 15.5 (7.0 4SD) hours.

A further analysis based on marital state (single or living together), cervical dilatation (1, 2 or 3 cm) on admission, supportive companion (present or absent), and perinatal problems (present or absent) was used to assess the effect of companionship after taking into account background variables. These findings suggest that the effect of support might depend on marital status, since the effect of a companion was greater on women living alone. This can be an important finding since, in general, women that live alone have less support from their

families, and already lack mate support throughout the childbearing process. So a greater impact on perinatal outcome can be expected when psychosocially higher risk women have a significant supportive companion during the birth of their child.

As the authors point out, their findings on the relationship of supportive companion with infant morbidity should be interpreted with caution. More infants of mothers in the control group were transferred to a neonatal intensive care unit than infants of mothers with supportive companion ($P = 0.07$). However, the sample size was small, and there were few facilities for closely observing transitional problems of the neonate, since all infants with any type of problem were sent to the neonatal intensive care unit. Finally, they conclude, as they did in the first study, that reducing anxiety in women in labor with a supportive companion may prevent an increase in catecholamine concentrations and thus shorten the duration of labor.

As was pointed out earlier, these studies were carried out in a population with similar settings, regulations and cultural backgrounds to those of the population to be used in this research. This is particularly important, since the populations described in the other studies discussed here are not only from a different culture (U.S.A.) but also have a markedly higher educational and socioeconomic level.

The issue of whether the benefit of the presence of a supportive other is enhanced when that person is a family member is not clearly understood. Sosa et al. (1980) and Klaus et al. (1986) used a lay woman (doula) as a supportive companion; the mothers in these studies did not have the opportunity to choose the supportive companion and the report does not mention if the mother had any preparation for childbirth during

pregnancy. The women in the study of Lederman et al. (1978) all had preparation during pregnancy with their husbands, and the husbands were their supportive companions during the birthing process. No published studies to date compare women that have a supportive companion with whom they have no prior relationship with women that have their husbands or a significant other as a supportive companion during labor. It is reasonable to think that if the supportive companion is the husband or someone with whom the woman has previously formed a bond, the effects of the support will be more beneficial.

Relationship Between Preparation for Childbirth, Presence of Father as Labor Coach, and Progress of Labor

Several studies have examined the cluster of variables of preparation for childbirth and father as labor coach in relation to perinatal outcomes. Lederman et al. (1979) examined the relationship between the presence of the husband, preparation, and length of labor. A significant correlation was found, but the correlation was low and not significant when they deleted five subjects that received analgesia and anesthesia from the study. Examination of the records of these five subjects indicated that they had poor preparation and poor relationships with their husbands, suggesting that women who felt well supported by their mates did better during labor, perhaps because of the effects of a better marital relationship and good preparation for childbirth.

Cronenwett and Newmark (1974) in a well-designed study using a questionnaire with high content validity examined father responses to childbirth in a convenience sample of 152 fathers following the birth of a child. The purpose of the study was to examine the effect of formal childbirth education and the attendance of the father in the delivery

room on the father's responses to the childbirth experience. The total population was divided into three groups: prepared attenders, unprepared attenders, and non-attenders in the delivery room.

Their findings showed that preparation and attendance in the delivery room were positively associated with the father's positive perception of himself and a positive evaluation of his relationship with his mate; moreover, fathers who attended the delivery room had a more positive experience of the birthing process, regardless of the level of preparation. As the authors pointed out, the findings suggest that the support of a significant other during labor and delivery may have a positive effect on their perception of the birth of their child and may enhance the marital bond. Another interesting finding in this study was that the wives of the prepared attending fathers had 26% greater incidence of labor shorter than ten hours, when compared with wives of non-attenders. This suggests that when the couple is well prepared for childbirth and the husband supports her throughout the birth of the child, the labor may be shorter.

In a naturalistic research design with a random sample of 398 low risk primiparas, Bennet, Hewson, Booke, and Holliday (1985) report the relationship between antenatal preparation and women's perception of partner support, and outcome as measured by labor and delivery procedures, and the use of pain medication and breastfeeding. The data was collected from interviews carried out in parents' homes, three weeks after the birth of their child. No data on reliability or validity of the instrument were presented.

When data about the perception of partner support were analyzed, the partner (independent of the assistant to prenatal preparation) was

rated as providing more support and having contributed more to feelings of well being of the pregnant women than did any of the medical staff. However, no relationship was found between preparation and incidence of complications and length of labor, corroborating in part Cronenwett and Newmark's (1974) results, where wives of prepared attending partners did not have fewer complications during childbirth, but did have shorter labors.

Summary

The research findings discussed above show evidence that maternal anxiety during pregnancy and during labor may have an impact on perinatal problems, particularly on length of labor. Some data further suggest that a supportive companion can help the mother to cope with the event, thereby decreasing anxiety and improving perinatal outcome. Couple preparation for childbirth and attendance of the husband during the birthing process may enhance the birthing experience for the couple. However, there are conflicting results regarding the effects of these interventions (preparation and attendance) on perinatal outcome.

Conceptual Framework

Childbirth is a normative life transition in the family. This transition begins with pregnancy, continues through to delivery of the child, and ends with the establishment of parenting. Sooner or later, the majority of the families will eventually go through this normative transition. Normative life transitions have been defined as "those transitions quite predictable and part of the natural growth and development of the family and its members through the life course" (Figley, 1983).

The conceptual framework of this research is based on Moss and Schaefer's (1986) perspective on normative life transitions. They developed this framework to explain the development and outcomes of normative life transitions as well as life crises. They proposed that the individual will perceive and give meaning to the situation (individual, cognitive appraisal), develop adaptive tasks and apply various coping skills in the process of adapting to the normative life transition. Demographic and personal characteristics, factors related to the event, as well as factors related to the social and physical environments, will influence the perception of the event, the adaptive tasks and coping skills adopted by the individual; these will in turn affect the final outcome of the normative transition or life crises.

Applying this conceptual framework to the particular event of the birth of the child, the perception and meaning of the event, the adaptive task, and the coping skills would influence, in this case, perinatal outcome. For example, the perception of the event of childbirth could be different whether the woman was primiparous or multiparous (demographic/personal factor). Event-related factors might include the biopsychological health status of the mother, the expectations she and her family have about the event as well as the unpredictability and lack of control of the onset of labor. These factors are likely to influence the eventual outcome, as suggested by previously reviewed research on anxiety and perinatal outcome. Social and physical environmental factors might include the way the mother and her family are treated in the institution in which she is going to deliver, i.e., what kind of support she has from her family and what kind of support she has during the event; these factors will influence

how she perceives and meets the adaptive tasks and uses coping skills during the intrapartum period.

Based on this conceptual framework, I propose that a supportive significant other can have a positive effect on the mother's perception of the birth experience and that this perception will then have a positive effect on perinatal outcome. The positive effect of the presence of a supportive other in childbirth may be readily observed in a research study conducted in Colombia, since conventional practice is for women to labor without a supportive other in attendance. The mother's coping skills will be enriched with the presence of this significant other. This supportive significant other will help the mother to conduct some problem solving strategies to meet demands of the situation, as well as helping to establish a meaning of the experience they both are living. The close relationship with this supportive other throughout the labor helps the mother to deal with emotions, feelings and sensations that are aroused, encouraging a satisfactory self-image and maintaining a sense of capability and competence. As a result, her coping skills will be enhanced, including seeking support and control of the situation, and expression of feelings, which in turn may help reduce anxiety levels. As has been discussed, high anxiety levels increase plasma epinephrine levels and, as a consequence, impair uterine activity and uteroplacental perfusion. So if the presence of the significant other reduces anxiety by supporting the woman's coping skills, the perinatal outcome will be expected to improve.

Assumptions

1. The mothers from the study will receive the same care from the health care provider as the rest of the population in that institution,

i.e., care will not be altered due to the presence of a significant other.

2. The presence of a supportive other will be considered positive by the laboring woman. Related to this, it is assumed that the supportive other chosen by the laboring woman is an individual in a close personal relationship with her.

CHAPTER 3

METHODOLOGY

Operational Definitions

For the purpose of this paper, the terminology is operationally defined as follows:

Presence of a supportive significant other (independent variable): the presence as a labor coach of a person that the mother selects, i.e., husband, mother, sister, other relative, or friend. This person will be with the pregnant woman throughout the labor and delivery, unless complications occur.

Anxiety (dependent variable) was measured with the Spanish version of the Spielberg State-Trait Anxiety Inventory (Diaz Guerrero, Spielberg, 1975) (See Appendix A.). The trait anxiety scale ("ansiedad rasgo" in Spanish) was obtained during the third trimester of pregnancy as a baseline measure. The state-anxiety scale ("ansiedad estado" in Spanish) was obtained during postpartum to measure anxiety during labor, just before the initiation of the second stage, and within the first four to 12 hours postpartum. Anxiety states are characterized by subjective feelings of tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system. Trait anxiety refers to relatively stable individual differences in anxiety-proneness (Spielberg, 1983).

Perinatal problems (dependent variable) were measured by overall progress of labor, further defined below, and newborn Apgar score measured at 5 minutes of age.

The overall progress of labor were measured according to length of labor and mode of termination of the second stage.

The length of labor was measured in hours and minutes from the time the woman was 4 cm dilated until the time the placenta was expelled. If the mother was more than 4 cm dilated when she arrived at the hospital, the time was calculated retrospectively according to the normal Friedman Graph (Ladewig, London, & Olds, 1986) for primigravidas.

Mode of termination of the second stage was measured by vaginal delivery, vaginal delivery with forceps, and cesarean section.

Newborn Apgar score at 5 minutes of age (dependent variable) was measured at 5 minutes of age.

Research Design

The design for this research was an experimental design with an experimental and a control group. Assignment of subjects to either group was done on random assignment of subjects based on table of random digits (Polit & Hungler, 1987).

Description of the Research Setting

The health care system in the city of Cali, Colombia is organized upon care levels. This city is divided into four areas to deliver primary care. Each area serves one portion of the population through one hospital center and several health care centers. Low risk pregnant women are managed during pregnancy either in a health care center or hospital center close to their residence. If a woman continues at low risk for labor and delivery, she will be attended at the hospital center. So the pregnant woman that receives prenatal care at the health care center is referred to the hospital center for the delivery. Here, the woman is admitted and managed during labor and delivery by an auxiliary nurse. The auxiliary nurse is supervised by a registered nurse who works during the morning shift (7:00 a.m. to 3:00 p.m.). A

medical doctor is available for consultation 24 hours per day in the hospital center. There are regulations that the auxiliary nurse has to follow that specify whether the mother can deliver at that center, and when she must be referred to the university hospital where secondary and tertiary care is given. For the purpose of this study, subjects were selected from the hospital center, "Primitivo Iglesias" (the subjects only delivered at this hospital if no complications occurred), and from the health centers that belong to the same area of the hospital center. These are the health centers of "Villacolombia", "Santiago Renjifo" and "El Rodeo". The women received prenatal care in the health care centers as well as in the hospital center.

Sample

Approval to conduct the research was granted by the Committee on Human Research at the University of California, San Francisco and from the Secretary of Municipal Health in Cali-Colombia. A convenience sample of 28 pregnant women that were admitted for labor at the hospital center entered the study. The subjects were then randomly selected to the experimental and control group at the time of admission. Three subjects (one subject from the experimental group and two subjects from the control group) were eliminated from this sample for the analysis of the results, due to incomplete data.

Pregnant women who met the criteria were asked to participate in the study. This criteria included:

1. low risk primigravidas 31 to 36 weeks at the time of recruitment, and at term at the time of data collection (diagnosis of gestational age was based on data of last menstrual period)

2. willing to participate with their companion (significant other)
in at least two of the five prenatal classes

3. 18 to 30 years old

4. agree to participate in the study (as well as the companion) at
time of admission to Labor and Delivery

5. be admitted to the hospital center for labor and delivery.

One hundred thirty eight subjects that met the first three criteria
were recruited from June 1987 through August 1987. One hundred ten
subjects did not enter into the final sample to be randomized to either
the control or experimental group, for reasons described below:

Fifty five women (50%) did not attend prenatal classes, even though
they were willing to participate when they were invited during their
prenatal visit. Thirty three women (30%) were referred to the
university hospital by the auxiliary nurse; reasons for referral are
presented in Table 1. Six women (5%) were admitted for labor and
delivery by the auxiliary nurse, but failed to inform the staff that
they were enrolled in the study and thus were lost to data collection.
Five women (5%) delivered at other institutions because at the end of
their pregnancy they were able to obtain insurance. Eleven women (10%)
did not deliver at the hospital center and was not possible to obtain
information about their place of delivery.

Table 1

Summary of the Cause of Referral for the 33 Patients Sent to the University Hospital*

Cause of referral	n
Hypertension	5
Preeclampsia	4
Prolonged pregnancy	5
Pelvic disproportion	3
IUGR	2
PRM and meconium	4
Dysfunctional labor	2
Premature labor	1
Vaginal bleeding	1
No data on referral	6

* Of these 33 patients, 28 mothers had a normal delivery and a healthy newborn; 1 mother had a Cesarean section for breech presentation; 3 mothers had a Cesarean section for fetal distress; and 1 mother had a normal delivery with a newborn's APGAR score at 1 minute of 5.

Instruments

A sheet with sociodemographic information and information required for the collection of the data was designed (see Appendix B).

Socioeconomic status was measured based upon the DANE classification, which is the format for the National Administrative Department of Statistics from the country of Colombia.

Anxiety was measured with the Spanish version of the Spielberg's State-Trait Anxiety Inventory (Diaz-Guerrero & Spielberg, 1975). Permission was requested to use the form. The reliability of this instrument is considered to be acceptable; the internal consistency for the state scale was measured by alpha coefficients (.92). The trait scale internal consistency was measured by the test-retest (.76 after 1 hour). This instrument has shown construct validity. Interview protocols were developed by the researcher to be used on the experimental couple and the nursing staff from labor and delivery. These interviews are semi-structured, using open-ended questions (see Appendix C). The interview questions directed to the women in the experimental group explored how they felt during labor and delivery, and with the presence of the significant other. The interview questions directed to the significant other from the experimental group explored how they felt being a companion during labor and delivery. Interview questions were also directed to the nursing staff giving care to both groups of women in the study. This interview explored their opinions about the new intervention, the presence of a companion during labor and delivery and their experience with the women and their companions during the study.

Procedure

Potential subjects (women who met the first two study criteria) were identified by the researcher at the health centers and the hospital centers, when they attended their prenatal check-up. The pregnant women were invited to participate using the appropriate revised verbal consent protocol (see Appendix D), which stated that if a women wished to participate, she should attend the designated series of prenatal classes with the companion of her choice. Prenatal classes were based on a course previously designed (Bernal, Castelblanco, Gonzalez, & Ospina, 1983), and were given every week by the researcher at the hospital center and at one of the health care centers. At the beginning of each class, the verbal consent for the potential subjects was read again, and a verbal consent for the companion (see Appendix D) was also read to ensure that both partners understood and consented to participate. Refusal to participate was accomplished by either expressing it directly to the researcher, or by not attending the prenatal classes. Also, the subjects were reminded at each class that withdrawal from the study could be accomplished at any time.

Administration of the trait anxiety measure was done by the researcher for all the pregnant women in the prenatal classes. A prenatal record card was given to the subjects when they attended the prenatal classes, and they were asked to bring that card when they were admitted to labor, so they could be identified by the nursing staff when they entered the unit. At the time of hospitalization for labor and delivery, subjects that met the established criteria for the study were randomly assigned to the experimental or control group. The women chosen for the experimental group were given the option to have their

companion throughout labor and delivery, and all of them accepted. The significant others from the experimental group were given the option to remain with the mother throughout labor and delivery. All but two remained with the mother. Of these two, one companion, the maternal grandmother, said that she had to go home to prepare breakfast for her daughter, and the husband stayed instead; the other significant other was the maternal grandmother also instead of a sister-in-law, because she had to work that day. The significant others from the control group were asked to wait in the waiting room during the birthing process, or to leave the hospital center and return the next day, as is customarily done there.

The 28 women that entered the study delivered between July and October 1987. The researcher collected data from 15 subjects that delivered between July and August 1987, and 2 colleagues trained by the researcher collected data from 5 and 8 subjects respectively between September and October 1987. The researcher and research assistants were informed by the nursing staff upon the hospitalization of the subjects. With the exception of the trait anxiety measure, data were collected when the women were hospitalized during the postpartum period (8 to 12 hours after delivery). Demographic data and information required for the analysis were collected from the chart and interview.

The anxiety measure was administered twice both to the experimental and control group in the first 4 to 12 hours of postpartum, the first time to measure how anxious they felt immediately before they started to push, and the second time to measure how anxious they felt at that moment in the postpartum period. The anxiety measure was read to all of the subjects by the researcher.

The semi-structured interviews developed for the experimental and control group, and the significant other from the experimental group were also carried out in the first 8 to 12 hours of postpartum. The semi-structured interview for the nursing staff was conducted by one of the research assistants after all the subjects had delivered.

CHAPTER 4

FINDINGS

The final sample for analysis was 25 subjects, nine in the experimental group and 16 in the control group.

Quantitative Data

The sociodemographic characteristics and the number of prenatal classes attended by the subjects and their companions are shown in Tables 2 and 3. No statistical difference was found between the experimental and control group with these characteristics. The mean number of prenatal visits attended by the experimental and control group was 6.2 and 5.3, respectively. The mean gestational age at labor for the experimental group was 38.6 and 39.1 for the control group. No statistical difference was found on these two measurements.

The findings in the duration of labor (measured in minutes), as well as in the anxiety levels measured in both groups, are summarized in Table 4. The Trait Anxiety Inventory was administered during the third trimester of pregnancy as a baseline measure, and the State Anxiety Inventory was administered during the postpartum period. No statistical difference was found between the experimental and control group in anxiety levels and in duration of labor. A power analysis indicated that a sample of 77 subjects in each group would have been necessary to find statistical difference in the duration of labor. All of the patients from the experimental and control group had a vaginal delivery.

The Apgar score at 5 minutes, the medical intervention received by the mother during hospitalization, and the medical intervention for the newborns when the mother was hospitalized during postpartum are

Sociodemographic Characteristics of the Sample

	Experimentals		Controls	
	n	%	n	%
Civil Status				
Single (1)	0	0	3	19
Married (2)	1	11	4	25
Separated (3)	3	33	1	8
Common Law (4)	5	56	8	16
Socioeconomic Class				
Low (2)	5	56	11	69
Middle Low (3)	4	44	5	31
Companion Selected				
Husband (1)	4	45	8	50
Sister (2)	2	22	1	6
Mother (3)	2	22	4	25
Other relative (4)	1	11	0	0
Other (5)	0	0	2	13
None (6)	0	0	1	6
Subjects' Age				
18-19	1	11	7	44
20-21	6	67	3	19
22-23	1	11	3	19
24-25	1	11	1	6
26-27	--	--	2	12
	Mean = 20.7		Mean = 20.9	
	S.D. = 1.7		S.D. = 2.9	
Companions' Age				
18-19	1	11	1	9
20-29	1	11	6	55
30-39	6	67	2	18
40-49	1	11	1	9
50-59	--	--	1	9
No data			5	31
	Mean = 31.2		Mean = 29.7	
	S.D. = 7.3		S.D. = 10.6	
Subjects' Years of Education				
1-5	3	33	5	48
6-10	3	33	9	56
11-15	3	33	2	13
	Mean = 7.4		Mean = 7.3	
	S.D. = 3.6		S.D. = 3.4	

* All percentages rounded to nearest whole number.

Table 3

**Mean Number of Prenatal Classes Attended by the Subjects and Their
Companions**

	Experimentals			Controls		
	n	mean	S.D.	n	mean	S.D.
Prenatal classes attended by subjects	9.0	4.6	2.1	16	4.0	2.1
Prenatal classes attended by companions	9.0	4.1	2.6	16	3.7	2.2

Table 4

Comparison of Anxiety Inventory Results and Duration of Labor Between Experimental and Control Groups

Measures	Duration of Labor (minutes)	Trait Anxiety Inventory (third trimester of pregnancy)	State Anxiety Inventory (end of first stage of labor)	State Anxiety Inventory (postpartum)
Experimentals				
\bar{n}	9	9	9	9
mean	357.778	42.44	51.55	31.66
S.D.	155.787	7.78	12.42	5.95
Controls				
\bar{n}	16	16	16	16
mean	465.625	39.56	45.12	29.62
S.D.	260.857	7.15	11.18	5.54
T	-1.13	0.94	1.33	0.86
df	23	23	23	23
P	0.271 (N.S.)	0.3 (N.S.)	0.1 (N.S.)	0.39 (N.S.)

summarized in Table 5. No statistical difference was found between the experimental and control group in the level of maternal or neonatal intervention. Two subjects from the experimental group had complications during the hospitalization. The auxiliary nurse referred one subject to the university hospital 9 hours after admitting her because she was in dysfunctional labor. The mother delivered 2 hours later in a private hospital since a patient overload in the Ob/Gyn service at the university hospital made immediate attention impossible. The personnel at the university hospital suggested that she be transferred to a private hospital; the family agreed to do so and she delivered 30 minutes later in the private institution. The second patient required care during the postpartum period due to hemorrhage. Two subjects from the control group had complications during the hospitalization period; one was augmented with oxytocin due to prolonged second stage of labor, and the second received intravenous fluids due to hemorrhage before expulsion of the placenta.

The significant others that stayed with the mother during labor and delivery were the same ones that attended the prenatal classes with the pregnant women, with two exceptions (explained in Chapter 3). Out of the nine companions present during labor, 5 (56%) were the husband, one (11%) was a maternal sister, two (22%) were the maternal grandmother, and one (11%) was another relative. Two of the companions did not stay with the pregnant women during the delivery. One companion, a maternal grandmother, stayed at the door of the delivery room, and reported that the auxiliary nurse that delivered the patient did not allow her to enter the room. The other companion was not able to stay for part of the labor and during delivery. Early in the morning after admitting the

Table 5

Comparison of 5 Minute Apgar Scores and Maternal/Neonatal Medical Intervention Between Experimental and Control Groups

	Experimentals			Controls		
	n	mean	S.D.	n	mean	S.D.
5 minute Apgar score interventions	9	10	0	16	9.5	0.5
Maternal medical interventions	9	1.2	0.4	16	1.1	0.4
Newborn medical interventions	9	1.1	0.3	16	1.1	0.4

patient, he was informed that his wife would deliver late in the afternoon and was sent out to buy some food for the mother after the delivery. When he returned three hours later ("because I didn't find anything close"), his wife had already delivered.

Interview Data

Along with the data related to anxiety, labor progress and outcome, interview data were gathered in an effort to obtain some insight about this new intervention from the perspective of the experimental subjects and their significant others, as well as from the nursing personnel working in labor and delivery during the time of the study.

Eleven open-ended questions were asked of the subjects in the experimental group while they were hospitalized during the postpartum period. All the mothers were willing and very open in answering these questions. The questions are presented below, with a summary of the responses as they were content-analyzed and clustered.

1. How did you feel during labor and delivery? Four subjects reported having positive feelings described as: "good", "under control", and "courageous". Two patients reported being "disturbed" and "frightened", and two patients had mixed feelings throughout the labor.

2. What helped you the most during labor and delivery? Eight out of nine patients mentioned the presence of the companion as a means of support. Two of these eight subjects also mentioned other patients as supportive, including one of these patients who belonged to the control group in this study. One patient mentioned breathing as a means of help during labor and delivery.

3. What bothered you most during labor and delivery? Five subjects mentioned labor pains; the other four patients had different

answers that included complaining of having too many vaginal examinations (1), not being allowed to walk (1), and the other patient shouting. One patient gave no response.

4. How did you feel with the presence of the companion? Eight patients out of nine felt good about the presence of the significant other; their answers were "very good", "confident", "safe", and "a blessing". One patient did not feel very good, explaining that she wanted to cry and yell, but was inhibited in the presence of her husband.

5. How do you feel the significant other helped you? The main answer was confidence and support from six subjects; two patients mentioned the significant other helped by applying what we learned in the prenatal class. The mother who felt inhibited by her husband answered, "He asked me to breathe, but I could not do it because of labor pains."

6. Was the experience close to your expectations or did it differ? One subject answered "better than expected"; four answered "as expected" varying from "being happy to be a mother" to being "very hard". Four who experienced labor different from expectations saw labor as less painful, lasting longer and causing them to lose control.

7. If you became pregnant again, would you like to have the presence of a significant other during labor and birth? Eight answered that they would like to have a companion again, giving similar explanations from questions four and five, like the advantages of receiving support, confidence, strength, and not feeling lonely. One patient explained that it was good to have a companion because she did not feel lonely, but she felt the contractions were harder with the presence of the companion (husband).

8. Would you like to have the same person, or would you rather be with another person? If the latter, who would you prefer and why?

Eight out of nine subjects wanted to be accompanied again by the same person and the explanation for this was also very similar to that given in answers to questions four, five, and seven. One patient said that she would prefer to have her mother as a companion, but unfortunately she was not alive.

9. Why did you choose this person? The answers here varied. Two of the three subjects who were accompanied by their mothers answered that they chose them because "they had had experience as a mother". The other subject answered that her mother was replacing her sister because the latter had to work. Five subjects who selected their husband as a companion answered that he was the person closer to them; one mentioned that he wanted to stay with her to see his baby born. One mother who was accompanied by her sister explained that both got along very well.

10. Is there any other person who you would like to have as a companion? Three subjects answered that they would like to have only their husband as a companion. Two mentioned their mother; another two their sister; one mentioned a friend; and one mentioned her sister-in-law.

11. Would you recommend this experience to another person? All the subjects would recommend the experience. The rationale was similar to that discussed in other questions. One of the others mentioned "because the husband can acknowledge what do you go through".

Seven open-ended questions were administered to the significant others who accompanied the mother during labor and delivery. All the companions were also willing to answer the questions. Each question and

the answers are presented below. Responses were content-analyzed and clustered to common meanings.

1. How did you feel during the labor and delivery of your (wife, daughter, sister, friend, other)? Six companions out of nine expressed nervousness and fear, but also they added they felt in control. The other three companions felt tranquil.

2. Was this experience close to your expectations or did it differ? Six companions out of nine had experiences different from expected; two of these companions said, "I didn't expect to be with her." One expected labor to be faster and another added that the mother "yelled a lot". The other three companions mentioned that the experience was as expected; one of them added, "I thought it would help to be with her."

3. Did you feel that you were able to help your partner? Seven companions out of nine answered yes. Two of them mentioned that they helped to remember to relax and to apply what they learned in the prenatal classes. Others mentioned giving them strength, confidence, and company. One companion answered, "I don't know if I helped her." Another companion (a sister) did not think she helped the mother during labor and delivery; however, she added that "Only I gave her hand and asked her to be tranquil." Looking at the responses that particular subject gave about how she felt with the presence of the companions, she said, "I felt good, safe, and accompanied by someone from my family" and added "My sister gave me courage."

4. Would you like to be with her again? All the companions answered yes. Six of them explained that the mother will do better with their company. One said, "I love her and I would like to be with her again." Another added, "I liked the experience."

5. Would you recommend this experience to another person? Why? All of the companions answered yes. The explanations were very similar to those given by the subjects, i.e., to give strength, confidence, and company; to show their love to her.

6. What did you like the most being a companion? Three answered "seeing her more tranquil and see my baby born". Four companions answered "being able to stay with her and help her". Two answered "knowing what was going on" and one stated, "didn't know".

7. What did you dislike? Two companions answered nothing; the other seven companions had very different answers, but all had some component of being nervous, i.e., two said "watching her suffer".

The interview conducted with the auxiliary nurses that worked in labor and delivery comprise of five open-ended questions. These questions were intended to gather information about their opinion of the presence of a significant other during labor and delivery. The interview was conducted by the research assistant after the last subject had delivered. Unfortunately, for inexplicable reasons, only three interviews were received for the analysis, and it was not possible to obtain the rest of the interviews (11).

Despite the fact that three interviews are not sufficient to reach any conclusions, they are reported here because their answers are consistent with statements that auxiliary nurses made during two meetings that the researcher had with them during the first two months of the sample collection. The questions are presented below.

1. What is your opinion about the presence of a significant other during labor and delivery? Two of them disagreed about the presence of the significant other during labor and delivery. One added that imposed

more work on her; the other one reported that the labor room is not arranged adequately for this purpose. The third auxiliary nurse said, "Some patients feel fine; others feel uncomfortable and become anxious."

2. Have you had this experience, and if so, who stayed with you? How did you feel with your companion? Two had had the experience, one with her husband, the other one with her mother, and both answered, "I felt very good."

3. When you stayed with a mother and a companion, how was your experience? One answered, "I observed that the patients became anxious very quickly." Another auxiliary nurse was uneasy because of other patients that didn't have a companion; the third didn't give any answer.

4. Do you agree that this experience should be applied in the labor and delivery ward? All answered no.

5. Do you have any suggestions if this service will be instituted in this facility? Two auxiliary nurses answered that "the ward should be rearranged for this purpose, and one also added that couples should be prepared for this event. The third person said that the low socioeconomic status from the patients and their families, as well as the conditions of the service do not make initiation of this intervention feasible.

CHAPTER 5

DISCUSSION

The purpose of this experimental study was to determine the relationship between the presence of a supportive significant other during labor and delivery, maternal anxiety levels, and perinatal outcome. Quantitative data were generated from the experimental and control group to test the hypothesis and aims posed in the study. Qualitative data were collected in the form of interviews from the experimental subjects, their companions to labor and delivery, and the nursing personnel that took care of the mothers and companions during this intervention. These interviews inquired into the perceptions they had about this new intervention.

Limitations of Study

Prior to discussing the results, the limitations of the study will be addressed. One major limitation is the very small sample size relative to the planned analysis. Three factors contributed to this problem. First, sample size was hampered by the complexity of collecting data in another country, with very limited time for this process. Second, the sample size was kept small by the substantial attrition of subjects, unexpected by the researcher, due to the referral process in the health care system in Cali. Out of 61 subjects that met the criteria, 33 (56%) were referred to the university hospital before being admitted to labor at the hospital center. Third, sample size was a problem as a result of the opposition from the auxiliary nurses to the presence of the significant other, depicted somewhat in the few

interviews answered by them, but also through several meetings the researcher had with the auxiliary nurses.

The sociodemographic characteristics of the subjects from this study (low socioeconomical status, few years of education, and somewhat young subjects) could have posed a potential limitation in the instrument utilized to measure anxiety. The researcher found that almost all subjects had some difficulties in the interpretation of the statement of the State-Trait Inventory. It was necessary to read the questions to each subject, and in some instances give some examples, so they would understand the meaning of the statement. Two factors could have contributed to this obstacle. First, the reliability of the instrument in the Spanish version was tested in high school and university students; however, the mean years of education of the mothers in this study was 7.2 with a S.D. of 3.6 (7.2 years of education in Colombia means only 2 years in the secondary school). Second, the Spanish version of the State-Trait Anxiety Inventory is based on the X form. This form was substituted in 1979 for the Y form, replacing 30% of the items, which resulted in an improvement of the psychometric properties of both scales. These psychometric properties were found to be relatively weak in the X form for younger, less educated persons and individuals from lower socioeconomical status group. Again the subjects from the study follow these characteristics, low socioeconomical class, less educated, and somewhat young (mean age 20.8 years for the total group).

Discussion of the Findings

The sociodemographic characteristics and some clinical data from both groups (experimental and control) were very similar, as expected in

an experimental randomized research design. However, the very small sample size does not allow to draw conclusions regarding the dependent variables. As mentioned in the findings, a statistically significant difference in the mean value for the duration of labor between the experimental and control group would have required at least 77 subjects.

The research design in this study left the selection of the significant other to the mother. The data suggest the importance of the mother's selection of a companion. Most of the women in this study who lived with their partners chose them as their companion. This finding is consistent with the literature from English speaking countries. Buckley, Garcia, O'Heilhy, and Stronge (1987) reported in their study an overall male attendance of 67%; Kliman and Kohl (1984) cited a Gallup poll in which 80% of all fathers attended the birth of their child.

Experts in the field have mixed opinions whether the husband's participation in the Latin American countries would be of benefit to the mother. Dr. May (personal communication, 1987) supported the investigator's decision to leave the selection of the significant other to the mother. However, Dr. Klaus (personal communication, 1987) suggested that a woman would be best accompanied by another woman (a duola). Because most of the women living with their partner in the present study chose them as a companion, this suggests that the Latin American man could be an asset to the mother during labor and delivery. Furthermore, the answers from the interviews reflect that both women and wife perceived the experience as a positive one.

It is the author's opinion that while women's attendance during labor and delivery from a duola could be of much benefit to the mother, as demonstrated in the studies of Klaus et al. (1986) and Sosa et al.

(1980), the significant other with an established emotional bond should be of more benefit, and the results discussed above suggest this.

Other significant findings are suggested when reviewing data from the single and separated women. In this present study, all of them chose another woman as their companion (e.g., their mother, sister or other relative). Much of the literature has tended to address the presence of a significant other during labor from the perspective of the husband. Buckley et al. (1987), in fact excluded women, especially young or single primigravidae, who were accompanied by another woman during labor. While studies show the importance of the father's attendance during labor, the single mother and the mother who does not desire her husband as a companion should not be prevented from choosing another significant other to accompany her. Buckley et al. found that only 30% of the single mothers were accompanied by their partners. In contrast, when married women were not accompanied by their husbands, the men did not attend because of employment, other domestic commitment or the wife's desire not to have the husband present. If women have the option to select a companion to accompany them during labor, and they are encouraged to do so, single women, women who do not desire to be accompanied by their husband or whose husbands do not want to or cannot accompany them, would not be left without the benefits of a companion during labor.

Certain conclusions may be drawn from the qualitative data, despite the small sample. The women during labor and delivery felt supported and confident with their significant other, would like to have a companion again, and would recommend this experience to other women. The significant others also felt that they were helpful to the mothers

during labor and delivery, liked the experience, and would recommend it to other mothers.

These findings are congruent with those of Palkovitz (1987); Buckley, Garcia, O'Heilhy, and Stronge (1987); Bennet, Hewson, Booker, and Holliday (1985); Klein, Fohrell Jist, Nicholson, and Standley (1980); and MacLaughline (1980). Palkovitz (1987) interviewed a convenience sample of 37 couples to study the fathers' motives for birth attendance. Thirty eight percent of the fathers said in open-ended questions that they were planning to attend the birth in order to support their wife; another 38% gave the same answer spontaneously as a second motive. In addition, in response to questionnaire items, 92% of the fathers agreed that the most important reason to go to the birth is to support their partners during a time of intense need. Buckley, Garcia, O'Heilhy, and Stronge (1987) in the study of attitudes and incidence related to husbands' attendance during labor, found that the mothers were very enthusiastic about their partner's presence during labor despite their passive attitude, and this perception was very similar in the men's responses. Bennet, Hewson, Booker, and Holliday (1985) found in their survey study that partners were rated by the pregnant women as having provided more practical help and support, and having contributed more to feelings of well being than did any of the medical staff.

Some of the responses concerning the partner's assistance in labor and delivery was his calming influence, being there, and talking or providing some distraction. Klein, Fohrell, Gis, Nicholson, and Standley (1980) found in their survey study that the mother's postpartum response centered on the husband's behavior, indicating that the most

helpful thing was the husband being there. One of the findings in the survey study from MacLaughlin (1980) showed that the fathers considered the assistance of their wives in labor a great achievement.

It is evident from the literature that the father's attendance to the birth of the child is becoming a normative practice in many western societies. Furthermore, the practice meets with a high degree of satisfaction from both partners (Buckley, Garcia, O'Heilhy, & Stronge, 1987; Cronenwett & Newmark, 1974).

Dr. Robert Bradley, with the introduction of his childbirth method (Bradley, 1965) was one of the earliest proponents of the presence of the fathers in the delivery room in the decade of the 60s. However, a great deal of resistance was found at the beginning of this event from health professionals, as stated from Dr. Bradley in an interview published in the RN Journal of 1966 (Juzwiak, 1966). He stated, "From the first, couples were eager to try the method, but many doctors, hospital administrators, and supervising nurses resisted. They thought having husbands in the delivery room would contaminate the obstetrical suites and create more work for everyone."

This resistance seems also to be true in the experience of this investigator as manifested by the information gathered in the interviews and meetings held with the auxiliary nurses during the study. They perceived that the presence of the significant other represented more work for them. In addition, since the labor ward is only one big room with eight beds, they felt very uncomfortable with the presence of a male companion, when other women were laboring alone without a companion.

The advent of modern obstetrics in Colombia has been influenced in the last 30 years by industrialized countries, particularly the United States. The adaptation of such practice has moved the birth event from the home environment into the hospital. Although this transition has improved perinatal outcome, it has disrupted the family support assumed to be an integral part of the home birth. Families were the fundamental component providing emotional support.

As mentioned earlier, many women in Colombia today undergo labor alone in busy hospitals or primary health care centers. Family members are not allowed in the labor wards, and pregnant women receive very little emotional support from health care personnel. Auxiliary nurses who provide direct patient care are often underpaid, required to work long hours with a heavy patient load. Therefore, they have less time to provide the emotional support for women undergoing labor and delivery.

Many of these women prefer to have a significant other as a companion during childbirth, and this is corroborated by the qualitative data in this study. However, hospital administrators and health care personnel, in general, are opposed to this measure. Their argument is that the family member can interfere with the privacy of other patients, since the wards are not individualized. Also, the work load will increase since the companion of the expectant mother will also require attention, particularly if the companion lacks childbirth preparation. The companion may become anxious and wander in the labor room. However, this can be avoided if the family member is incorporated in the care of the mother early during pregnancy through the prenatal visits and prenatal classes. In turn, not only will the mother benefit during

labor and delivery, but also the family throughout the childbearing and childrearing years.

Jordan (1980) reported a cross-cultural investigation of childbirth in Yucatan (a region of Mexico), Sweden, Holland, and the United States. In Yucatan a respectful lay midwife assists with the Mayan woman's delivery; this event is part of the family affairs. In Holland 55% of births occur at home, whereas in Sweden all births occur in the hospital. Both these countries have a very low infant mortality rate; most of the births are attended by highly trained midwives, and family support is provided throughout the event. In contrast, the childbirth process in the United States falls almost exclusively in the medical realm and the hospital environment. Despite this fact, the infant mortality rate in the United States is higher than Holland and Sweden, and lack of family support during childbirth continues to exist.

Perinatal care in Colombia has improved as a result of medical advances. By applying the models of perinatal care in Holland and Sweden, health professionals can also greatly improve perinatal care. From Holland we can learn the importance of highly trained midwives in a home setting; from Sweden, the benefit of significant others in the hospital environment and delivery by midwives.

Nursing Implications

Nursing researchers need to consider the complexity involved in research at an international level. Many constraints that can interfere with its accomplishment involve communication, transportation, and time. Part of the data collection conducted by the research assistant was accomplished by mail or telephone. The first is slow; the second is costly. In Colombia cars are very expensive and difficult to afford.

Therefore, transportation was necessary by public means, which resulted in more time and effort spent. Finally, the nurses that worked as research assistants had other commitments; data collection was not their only priority. Nevertheless, researchers should not be discouraged in pursuing this type of investigation, since the knowledge base in nursing can be expanded by the exchange of experience and uniqueness that each country has in terms of patient care.

The opposition encountered from the nursing personnel in this study reflects the general attitude that health care providers and administrators have regarding the presence of the significant other. This attitude needs to be considered when dealing with the replication of this study. To help change this attitude, it is necessary to educate administrators and health care personnel toward the benefits of the presence of a companion during labor and delivery, rather than making structural changes in the health care delivery system. Attention should also focus on assuring the presence of a well trained midwife in the home, as well as the presence of extended family members in the hospital setting. By combining aspects of both environments, the birth event in Colombia can benefit from both the emotional support of the family and the technical support of the health care system.

Cronenwett and Newmark (1974) reported that fathers with preparation or who attended the delivery rated the overall childbirth experience significantly higher than the other fathers. Further, according to the findings of Peterson, Mehl, and Leiderman (1979), the most significant variable in predicting father attachment was the father's participation in the birth and his attitude toward it. This finding and others previously discussed illustrate the importance of

integrating the parents' participation in the childbearing process. This can be achieved through a family centered unit where nurses are capable to prepare both parents, their children, and their families for this experience.

Future Research

The question of whether South American mothers should be allowed to have a significant other as a companion for labor and delivery child is one that deserves further investigation. The current research should serve as a pilot study. However, replication of this study with a much larger sample is advisable, since most of the findings from the review of the literature and from a population with ethnic and socio-demographic characteristics differ from the population in Colombia. Since the women and their companions in this study experienced companionship during labor and delivery as positive, the option of having a significant other present during childbirth should be made available. This risk-free intervention with minimal cost can improve perinatal outcome. Future research also should be directed to the benefits that the home environment can have on the process of childbirth.

Conclusion

The purpose of this research, which was conducted in Colombia, was to investigate the benefit of the presence of a significant other on women's anxiety and perinatal outcome during labor and delivery. The presence of a significant other was not found to be significantly related to maternal anxiety or to improve perinatal outcome. However, the sample size was small and the literature currently available strongly supports the importance of a significant other in the birth

event. Based on the results of this study, both the mother and her companion expressed a positive benefit.

It is important to learn more about the transition of birth from the home to the hospital and to discern the benefits of both environments. Ideally, one would retain the support system of the family in the home and partake of the technological advances and quality of care in the hospital.

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Appendix A:
Spielberg State-Trait Anxiety Inventory
(Spanish version)

IDARE

Inventario de Autoevaluación

por

C. D. Spielberger, A. Martínez-Urrutia, F. González-Reigosa, L. Natalicio y R. Díaz-Guerrero

Nombre: _____ Fecha: _____

Instrucciones: Algunas expresiones que la gente usa para describirse aparecen abajo. Lea cada frase y llene el círculo del número que indique cómo se *siente ahora mismo*, o sea, en *este momento*. No hay contestaciones buenas o malas. No emplee mucho tiempo en cada frase, pero trate de dar la respuesta que mejor describa sus sentimientos ahora.

	NO EN LO ABSOLUTO	UN POCO	BASTANTE	MUCHO
1. Me siento calmado	①	②	③	④
2. Me siento seguro	①	②	③	④
3. Estoy tenso	①	②	③	④
4. Estoy contrariado	①	②	③	④
5. Estoy a gusto	①	②	③	④
6. Me siento alterado	①	②	③	④
7. Estoy preocupado actualmente por algún posible contratiempo	①	②	③	④
8. Me siento descansado	①	②	③	④
9. Me siento ansioso	①	②	③	④
10. Me siento cómodo	①	②	③	④
11. Me siento con confianza en mí mismo	①	②	③	④
12. Me siento nervioso	①	②	③	④
13. Me siento agitado	①	②	③	④
14. Me siento "a punto de explotar"	①	②	③	④
15. Me siento reposado	①	②	③	④
16. Me siento satisfecho	①	②	③	④
17. Estoy preocupado	①	②	③	④
18. Me siento muy excitado y aturdido	①	②	③	④
19. Me siento alegre	①	②	③	④
20. Me siento bien	①	②	③	④

IDARE

Inventario de Autoevaluación

Instrucciones: Algunas expresiones que la gente usa para describirse aparecen abajo. Lea cada frase y llene el círculo del número que indique cómo se siente *generalmente*. No hay contestaciones buenas o malas. No emplee mucho tiempo en cada frase, pero traté de dar la respuesta que mejor describa cómo se siente *generalmente*.

	CASI NUNCA	ALGUNAS VECES	FRECUENTEMENTE	CASI SIEMPRE
21. Me siento bien	①	②	③	④
22. Me canso rápidamente	①	②	③	④
23. Siento ganas de llorar	①	②	③	④
24. Quisiera ser tan feliz como otros parecen serlo	①	②	③	④
25. Pierdo oportunidades por no poder decidirme rápidamente	①	②	③	④
26. Me siento descansado	①	②	③	④
27. Soy una persona “tranquila, serena y sosegada”	①	②	③	④
28. Siento que las dificultades se me amontonan al punto de no poder superarlas	①	②	③	④
29. Me preocupo demasiado por cosas sin importancia	①	②	③	④
30. Soy feliz	①	②	③	④
31. Tomo las cosas muy a pecho	①	②	③	④
32. Me falta confianza en mí mismo	①	②	③	④
33. Me siento seguro	①	②	③	④
34. Trato de sacarle el cuerpo a las crisis y dificultades	①	②	③	④
35. Me siento melancólico	①	②	③	④
36. Me siento satisfecho	①	②	③	④
37. Algunas ideas poco importantes pasan por mi mente y me molestan	①	②	③	④
38. Me afectan tanto los desengaños que no me los puedo quitar de la cabeza	①	②	③	④
39. Soy una persona estable	①	②	③	④
40. Cuando pienso en los asuntos que tengo entre manos me pongo tenso y alterado	①	②	③	④



Appendix B:
Data Collection Sheet

Appendix B

DATA COLLECTION SHEET

Code No. _____
Experimental _____
Control _____

Sociodemographic Information

Age _____ Date of Birth _____

Place of Living (district) _____

Civil Status: Single (1) _____ Years of
Married (2) _____ Education _____
Separated (3) _____
Common Law (4) _____

Socioeconomic: Low-Low (1) _____
Low (2) _____
Status (DANE) Middle-Low (3) _____
Middle (4) _____

Number of prenatal classes pregnant woman attended _____

Presence of the significant other in prenatal classes: Yes _____
No _____

If yes, who: Husband (1) _____ Other relative (4) _____
Sister (2) _____ Other (5) _____
Mother (3) _____ None (6) _____

Number of prenatal visits attended _____

Month of first control _____

Health center for prenatal care _____

Admission to Labor and Delivery

Time _____ Date _____

Vital Signs: BP _____ Temp _____ Pulse _____

Obstetrical Examination:

Uterine Height: _____ cm FHR _____ Uterine contractions _____

Admission to Labor and Delivery (continued)

Vaginal Examination:

Dilatation ____ cm Effacement ____ % Membranes intact: Yes ____
No ____

Station ____ Amniotic Fluid: Clear ____
Meconium ____
Blood ____

Vertex Presentation: Yes ____
No ____

Diagnosis: Week of Gestation ____

Stage of Labor: First ____
Second ____

Phase: Active (4-5 cm) ____
Max. Acel. (5-9 cm) ____
Desacel. (9-10 cm) ____

Fetal status ____
Other ____

Length of Labor

First Stage (Beginning at 4 cm of dilatation and ending at 10 cm of dilatation):

____ hours ____ minutes

Second Stage (Beginning at 10 cm of dilatation and ending at the birth of the child):

____ hours ____ minutes

Form of Delivery

Vaginal ____
Instrumentation with forceps ____
Cesarean Section ____

APGAR Score at 1' ____ at 5' ____

Presence of the significant other during labor and delivery:

No ____
Yes ____
In part ____

Fetal Status

Signs of bradycardia by auscultation: Yes _____
No _____

(Bradycardia is present when FHR is consistently below 120 beats per minute for a 30 minute period.)

Signs of tachycardia by auscultation: Yes _____
No _____

(Tachycardia is present when FHR is consistently above 160 beats per minute for a 30 minute period.)

Auscultation of decelerations: Yes _____
No _____

Newborn Status

Remain with the mother: Yes _____ No _____

Weight _____ gms Height _____ cm

Require any intervention:

Resuscitation Yes _____ No _____
O₂ Yes _____ No _____
Heating with lamp Yes _____ No _____
Transfer to higher level of care Yes _____ No _____

Postpartum Maternal Status

Remain in ward: Yes _____ No _____

Blood pressure during stay:

Normotension _____
Hypotension (diastolic below 60) _____
Hypertension (diastolic above 90) _____

Require any medical intervention: No _____
Yes _____
What kind _____

Referral of the mother to the university hospital with diagnosis of arrest of labor and/or signs of fetal distress:

No _____
Yes _____
Specify _____

Appendix C:
Interview Protocols

Appendix C
Interview Protocols

POSTPARTUM INTERVIEW GUIDE FOR THE MOTHER
(For the Experimental Group)

1. How did you feel during labor and delivery?
2. What helped you most during labor and delivery?
3. What bothered you most during labor and delivery?
4. How did you feel with the presence of the significant other?
5. How did you feel the significant other helped you?
6. Was this experience close to your expectations or did it differ?
7. If you become pregnant again, would you like to have the presence of the significant other during labor and birth?
8. Would you like to have the same person or would you rather be with another person? If the latter, who would you prefer and why?
9. Why did you choose this person?
10. Is there any other person you would like to have as a companion?
11. Would you recommend this experience to another person?

POSTPARTUM INTERVIEW GUIDE FOR THE SIGNIFICANT OTHER
(For the Experimental Group)

1. How did you feel during the labor and delivery of your (wife, daughter, sister, friend, or other)?
2. Was this experience close to your expectations? or did it differ?
3. Did you feel that you were able to help your partner? How?
4. If you would be asked to be a companion during labor and delivery again, would you like to do it?
5. Would you recommend that experience to another person?
6. What did you like the most being a companion?
7. What did you dislike?

Interview Guide for Nursing Personnel
in Labor and Delivery

1. What is your opinion about the woman having a companion related to her during labor and delivery?
2. Have you had this experience? Who stayed with you? How did you feel with the companion?
3. How was your experience when you were with a mother that had a companion during labor and delivery?
4. Do you agree that this experience should be applied here?

Yes _____ No _____

5. Do you have any suggestions in case that this experience would be applied here?

Appendix D:
Verbal Consent Protocols
for Subjects and Companions

Appendix D

Verbal Consent Protocols
for Subjects and Companions

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Verbal Consent to Act as a Participant in the
"Support During Labor and Delivery Study"

Form A: Pregnant Women

The nurse who recruits the subjects will introduce herself: I am Ofelia Corrales, a nurse who is helping Pilar Bernal, another nurse who at the present time is a student in a university. She is doing a study to find out what happens when a companion goes with the mother to prenatal classes, and the companion learns how to help the mother when she starts labor.

If you want to participate in the study, you will attend the prenatal classes with the companion that you select. These prenatal classes will be given every week from 7:00 p.m. to 8:00 p.m. on Fridays at the Primitivo Iglesias Hospital Center, and Thursdays at the Villacolombia Health Center. The classes are separated from your prenatal checkup visit. Your companion will be with you during all the prenatal classes and will take you to the hospital center when labor starts.

During the last 3 months of the pregnancy when you go to the prenatal classes, and then when you are hospitalized during postpartum, you will be asked some questions from Pilar Bernal or another nurse about how you feel. To answer the questions, each time will take you 8 to 10 minutes. Also, during post-partum we will ask you some questions to know how you felt during labor and delivery. This interview will last 10 to 20 minutes. These interviews will be done by Pilar Bernal or another nurse collecting data for the study.

If you feel that you don't want to participate in the study nothing in your care will change. You can continue with your regular prenatal checkups, attend the prenatal classes given at the health center, and have the delivery at the hospital center if complications do not occur. All of this is part of the regular care you will receive. To participate in this study you will attend the prenatal classes with your companion, you will answer three questionnaires, one during pregnancy and two during post-partum; each one lasting 8 to 10 minutes. Also, you will answer one interview when you are hospitalized during post-partum. There may not be benefits for you personally from participating in the study, but the information gained from the study may help nurses in the future to give better care to patients.

We assure you that your responses will be kept confidential. Your name will not appear in any of the questionnaires we use for the study. Instead, we will give you a number and only that number will appear in all the forms we have to fill out for the study. We also assure you that your care will in no way be affected by your decision to either participate or not participate in the study, and further, that you can withdraw from the study at any time and not jeopardize yourself in any way. Also, at any time during the study you and your companion can refuse to answer any question asked for the purpose of this study.

If you have any questions about this study, you don't want to participate, or you want to withdraw from the study, you can contact the head nurse or any of the nurses that work in the maternity ward in the health care center. The home telephone number of Pilar Bernal is 833079. You can contact her whenever you want.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Verbal Consent to Act as a Participant in the
"Support During Labor and Delivery Study"

Form B: Companionship

The nurse who recruits the subjects will introduce herself: I am Ofelia Corrales, a nurse who is helping Pilar Bernal, another nurse who at the present time is a student in a university. She is doing a study to find out what happens when a companion stays during labor and delivery with the mother.

If you are selected as a companion by a pregnant woman getting prenatal care here, and you want to participate in the study, you will attend the prenatal classes with the pregnant woman. These classes will be given every week from 7:00 p.m. to 8:00 p.m. on Fridays at the Primitivo Iglesias Hospital Center, and Thursdays at the Villacolombia Health Center. You will be asked to attend to all the prenatal classes and to take the pregnant woman to the hospital center when she starts labor.

Shortly after the pregnant woman has delivered, you will be asked some questions by me or the nurse, Pilar Bernal, about how you felt about being a companion of the pregnant woman during labor and delivery. This interview will last 10 to 20 minutes.

There may be no benefits for you personally from participating in the study, but the information gained from the study may help nurses in the future to give better care to patients.

We assure you that your responses will be kept confidential. Your name will not appear in the interview we use for the study. Instead, we will give you a number, and only that number will appear on all forms we have to fill out for the study. We also assure you that the care of the

pregnant woman that you are accompanying will in no way be affected by your decision to either participate or not participate in the study, and further that you can withdraw from the study at any time and not jeopardize yourself or the pregnant woman in any way. Also, at any time during the study you and the pregnant woman can refuse to answer any questions asked for the purpose of this study.

To participate in the study you will attend the prenatal classes with the pregnant woman, take the pregnant woman to the hospital center when she starts labor, and answer some questions after the mother has delivered. If you have any questions about this study, you don't want to participate, or you want to withdraw from the study, you can contact the head nurse or any of the nurses that work in the maternity ward in the health care center.

The home telephone number of Pilar Bernal is 833079. You can contact her whenever you want.

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