

EFFECTS OF ANXIETY ON LABOR AND THE FETUS

A THESIS

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BY

CAROL M. ARNOLD, B.S.

DENTON, TEXAS

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The Graduate School
Texas Woman's University
Denton, Texas

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We hereby recommend that the Thesis prepared under
our supervision by Carol M. Arnold
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be accepted as fulfilling this part of the requirements for the Degree of _____
Master of Science

Committee:

Margaret Mc Elroy
Chairman
Susan Wilson
Rose M. Nesiradomy
Irene Anderson

Accepted:

Leslie M. Thompson
Provost of the Graduate School

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CHAPTER 1

INTRODUCTION

Pregnancy involves the woman in an emotional and physical crisis. Anxiety develops in the pregnant woman regardless of her physical, emotional, or economic status and is expressed in varying degrees throughout the 9 months. During the first trimester, anxiety generally centers around the woman working through ambivalent feelings and adjusting to a new role. Anxiety in the second trimester may arise from the increasing dependency needs of the woman and her efforts to adapt (Hassid, 1978). Anxiety tends to increase during the third trimester as delivery draws nearer (McDonald, 1968). When anxiety is at its peak in the third trimester, the woman may experience insomnia, restlessness, depression, or uneasiness (Cassidy, 1974).

Anxiety for the laboring woman may be considered from psychological and physiological aspects. Psychologically, anxiety may result from fear of possible injury, loss of the ability to cope or maintain control over behavior, fear of pain, or the loss of self-esteem if the woman cannot cope with the pain (Hassid, 1978). As delivery draws nearer, fear of the death or malformation of the infant also

increases (Crawford, 1968). Physiologically, anxiety has been linked to vasoconstriction and uterine disturbances such as dysfunctional and prolonged labor (Lederman, Lederman, Work, & McCann, 1978). Recognition of the potentially harmful effects of maternal anxiety on the function of the uterus and oxygenation of the fetus underlies the care given to the pregnant and laboring woman. Suggestions have been made about caring for maternal anxiety in a nonpharmacological method (Fox, 1979). In some cases the use of pain-relieving medications or anesthetic may be required to relieve the anxiety. In these situations, the nurse can provide a supportive environment to help maximize the least amount of drugs used.

Problem Statement

The problem for this study was: Is there a relationship between maternal anxiety and maternal and/or fetal physiological disturbances during labor among primigravidae?

Justification

Anxiety, depending upon the severity, can mean possible vasoconstriction and uterine hypoperfusion resulting in dysfunctional uterine activity. Through this mechanism, a longer, more complicated labor and/or fetal distress may occur (Lederman et al., 1978). Recognition of the potentially harmful effects of maternal anxiety on the

function of the uterus and oxygenation of the fetus should underlie the care given to the pregnant and laboring woman. The suggestion has been made that anxiety should first be treated in a nonpharmacological method. Therefore, anxiety is an excellent target for nursing diagnosis and intervention throughout pregnancy and labor. Having more support from the nurse may prevent the woman from experiencing a difficult labor, unhappy delivery experience, and a difficult postpartum recovery. The ultimate goal for treatment of anxiety would be increased predictive power in determining the anxious woman, and preventing the possible anxiety-related complications (McDonald, 1968).

Conceptual Framework

The framework for this study included the concept of anxiety with its behavioral and physiological responses in the individual. There is little disagreement on the characteristics of anxiety. These include diffuse apprehension, feelings of uncertainty, restlessness, depression, or uneasiness. Anxiety is seen as a threat to the existence of personal security, either psychologically or physically. The result may be disturbances of intellectual functioning, verbal reports of apprehension, inability to concentrate, feelings of tension, and expectations of being unable to cope. The physiological responses include muscle tension, increased heart rate and

blood pressure, rapid respiration, dry mouth, coldness in hands and feet, and nausea and diarrhea (May, 1977). The differences in the views on anxiety lie in how anxiety develops or begins within the individual.

Anxiety has been viewed as the inability of man to master reality and control tension with his available defense mechanisms. It has also been described as maladaptive responses to disruptive relationships with significant others; a condition of apprehension precipitated by a threat to the values characteristic or basic to the individual's personality, and as a physiological state of arousal caused by stimulus conditions in the environment (Fann, Karacan, Pokorny, & Williams, 1979). Cannon first described the "fight or flight" reaction to stress in 1916 (May, 1977). This reaction mobilizes the body to deal with real or imagined discomfort. Today, it is known that the sympathetic branch of the autonomic nervous system is activated causing a rise in the heart rate, blood pressure, and respirations. With this activation, the liver releases more sugar to provide energy, catecholamines are released into the blood system, the smooth muscles contract, digestive activity slows, the spleen contracts and discharges its store of red blood cells, and a clotting factor is released into the blood system. Originally, for primitive man, these responses provided protection for him

from danger through fight or flight. Today, anxiety mainly concerns threats to the psychological status, but the bodily mechanisms to cope remain the same (May, 1977).

Selye (1976) researched stress as a result of anxiety and formulated the hypothesis that stress is the nonspecific response of the body to any demand for readjustment to establish normalcy. He stated that the nonspecific responses of the body to any agent or situation are always the same, and what varies is the degree of response. The degree of response depends on the intensity of the demand for adjustment (Selye, 1976). Selye (1976) noted that an entire syndrome of responses occurs as manifestations of the body's mechanism of defense. The entire syndrome of responses, including the pattern of development, is called the general adaptation syndrome (G.A.S.). The G.A.S. has three distinct stages: (1) alarm reaction, (2) stage of resistance, and (3) stage of exhaustion. No matter what first triggers the signals, this syndrome influences the pituitary and adrenal glands to produce adaptive hormones, such as the catecholamines, to restore balance. The primary catecholamines are epinephrine and norepinephrine. These hormones accelerate the pulse, elevate the blood pressure, stimulate the central nervous system, suspend digestion, and raise the blood sugar levels. These responses are the same as the "fight or flight" response described by Cannon

(1929). This alarm reaction can be useful to aid in man's adaptation, but over long periods of time the ability of man to cope to new or different stress is lowered (Selye, 1976).

Both human and animal data suggest that there are subtle specific responses to stress, and the term stress is used to represent the broad category typically described as the stress syndrome or anxiety (Sweeney, Gold, Pottash, & Davies, 1980). There exists extensive literature on relationships between human emotional states and bodily changes. These changes are under the control of the autonomic nervous system and will occur regardless of the basis of anxiety, real or imagined (Sweeney et al., 1980). According to Levinson and Shnider (1979), the basic physiology of this response depends on the effects of the catecholamines and which adrenergic receptors are stimulated. If the alpha receptors are the primary sites of stimulation, vasoconstriction will occur throughout the body causing a rise in the blood pressure. Sweeney et al. (1980) demonstrated that, with increased levels of anxiety, there was an increase in the peripheral amounts of epinephrine and norepinephrine. Norepinephrine mainly affects alpha receptors causing vasoconstriction. Epinephrine in low amounts is primarily a beta stimulator; but, in high doses, epinephrine will also act as an alpha stimulator. The net effect is that the catecholamines affect both blood pressure

and vascular resistance. Levinson and Shnider (1979) have shown that the net effect of the increase of maternal catecholamines results in lower uterine blood flow, weaker contractions, and longer labors. In the presence of decreased uterine circulation and prolonged labor, the fetus becomes at risk and fetal bradycardia or acidosis may develop (Lederman et al., 1981). Lederman et al. (1981) also reported that there is a relationship between a compromised fetus, lower Apgar scores, and slower infant development during the first year of life.

Assumptions

For the purpose of this study, the following assumptions were made:

1. Pregnancy and delivery are anxiety producing life events.
2. Anxiety is measurable.

Hypotheses

The hypotheses for this study were:

1. Among primigravidae there are positive relationships between anxiety, as measured by the Evaluation of Muscle Tension during the third trimester and the Evaluation of Emotional Tension on Admission in Labor, and maternal physiological disturbances during labor.
2. Among primigravidae there are positive relationships between maternal anxiety, as measured by the

Evaluation of Muscle Tension during the third trimester and Evaluation of Emotional Tension on Admission in Labor, and fetal physiological disturbances during labor.

Definition of Terms

1. Anxiety: a specific emotional state which consists of consciously perceived feelings of nervousness, tension, and apprehension associated with activation of the autonomic nervous system. For this research, scores above the median on the Evaluation of Muscle Tension and Evaluation of Emotional Tension on Admission in Labor indicate anxiety.

2. Primigravidae: women who are pregnant for the first time.

3. Maternal physiological disturbances: prolonged labor as defined by Friedman (1967) and adapted for this study, (a) labor, which begins slowly, progressing for 12 to 15 hours without cervical dilatation, (b) protracted active phase which is a rate of cervical dilatation less than 1.2 centimeters per hour, and (c) secondary arrest of dilatation where progression of cervical dilatation in the active phase is protracted beyond 1 to 2 hours. Presence of any one of these three conditions indicate prolonged labor. These conditions will not be considered in association with regional anesthetic administration. In this study, onset of labor will be measured by the woman's self-report upon her admission to labor and delivery.

4. Fetal physiological disturbances: fetal distress not associated with maternal hypotension, hypertonic uterine contractions, or Type I fetal heart rate decelerations. Maternal hypotension is defined as a 15% drop in systolic or diastolic readings. Hypertonic uterine contractions are defined as a contraction lasting over 90 seconds on a fetal monitor. Type I decelerations have a gradual onset and recovery and are thought to be associated with head compression (Russin, 1974). For this study, fetal distress was measured by (a) early deceleration with a pronounced pattern of repetitive and large drops of 50 beats or more in fetal heart rate, (b) base line tachycardia above 160 beats per minute, (c) base line bradycardia below 90 to 100 beats per minute, (d) loss of beat to beat variability which is the normal 5 to 10 beat oscillation, and (e) Apgar scores below seven at 1 and/or 5 minutes. Presence of any one of these five conditions indicate fetal distress.

Limitations

The limitations which may have influenced the conclusions of this study were:

1. The effect of prenatal classes on anxiety levels prior to admission to labor and delivery.
2. No control on medications or anesthesia to relieve anxiety, tension, or pain.

3. No control on medication used to stimulate or augment a prolonged labor pattern.

4. No control on equipment used to measure prenatal blood pressure or blood pressure upon admission to labor and delivery.

5. Different nurses using the Evaluation of Emotional Tension on Admission in Labor tool on all three shifts.

6. No controls for the effects of maternal age, health, or socioeconomic status on anxiety.

7. The low reliability value of the instrument.

8. The use of convenience sampling may limit the conclusions and generalizations which can be drawn.

Summary

Pregnancy involves the woman in both an emotional and physical crisis, and anxiety is considered to be a global construct of pregnancy. This anxiety tends to rise to a peak in the third trimester and the effects of anxiety may be expressed in varying degrees. This study was conducted to determine if a relationship exists between maternal anxiety, the character and nature of labor, and the well-being of the fetus.

A conceptual framework of anxiety was utilized for the study. Two hypotheses were formulated, terms were clarified, and limitations for the study were identified.

CHAPTER 2

REVIEW OF LITERATURE

Anxiety levels may be correlated with various complications of pregnancy such as toxemia. Increased levels of anxiety may predispose the woman to prolonged labor and/or other complications of the birth event (Beck & Siegel, 1980). There is a general agreement that even in a normal pregnancy profound physiological and hormonal changes take place. Anxiety levels may rise as a result of the physiological stress, role conflict, or the transient ego vulnerability of the pregnant woman.

The concept of anxiety occupies a central position in many of today's learning, personality, and psychoanalytical theories. Generally, anxiety is considered to be a fundamental human state arising from the individual's awareness of impending danger. Anxiety serves the function of alerting and mobilizing an individual to cope with a stressor. The stressor may be real or imagined, physical, or psychological.

Concept of Anxiety

A description of anxiety has appeared in world

literature for centuries. Anxiety has been interpreted through many different disciplines. Early concepts include the philosophical and political views of Spinoza and Pascal who both equated anxiety with freedom (May, 1977). Today's interpretations include the physiological research that demonstrates the body's production of epinephrine and norepinephrine in the anxious state (Levinson & Shnider, 1979). Freud (1943) was one of the first to give the phenomena of anxiety a definition. He distinguished anxiety from other unpleasant affective states such as anger or grief. Freud (1963) continually revised his theories on the origins of anxiety including fear of loss of the mother at birth, and anxiety as a function of the way an individual perceives and interprets a danger situation. If man cannot master reality and control tension with his available defense mechanisms, anxiety ensues. Tension builds within the individual, and if that tension cannot be handled by homeostatic mechanisms available, the individual experiences feelings that vary along a continuum from diffuse undifferentiated apprehension to overwhelming distress, helplessness, and chaos.

Spielberger (1976) observed that fear or anxiety is widely regarded as a basic human emotion evolving over generations as a mechanism for coping with danger. He further stated that one important source of confusion in the

discussion of anxiety is the fact that anxiety, stress, and fear are often used interchangeably by many researchers. Anxiety, as defined by Spielberger (1976), is a process or a sequence of cognitive, affective, physiological, and behavioral events that may be initiated by either stressful external stimuli, or by a thought or idea that forecasts threat. He further differentiated anxiety into "state" and "trait" anxiety. Trait anxiety is the relatively stable characteristic of the personality, and the individual maintains this trait anxiety at a normal level for his own homeostasis. State anxiety is the transitory or acute condition that varies according to the threat of the experience. Therefore, an anxiety state lies at the core of the anxiety process which involves stress, threat, physiological changes, and behavioral reactions (Spielberger, 1976).

Cannon (1929) first demonstrated that the adrenal medulla secreted adrenaline in response to emotional excitation. This is the "fight or flight" response which quickens the pulse, raises the blood pressure, and stimulates the central nervous system. Digestion is temporarily suspended, blood clots more quickly, and the blood sugar level is elevated. Selye (1976) described the same changes in the alarm reaction to stress.

A common denominator to any theory of stress and/or anxiety is the biological stress of the body's attempt to maintain homeostasis. Selye (1976) researched the body's attempt to adapt to stress as the nonspecific response of the body to any demand for readjustment. He contended that the adaptive response of the body is the same regardless of the stimulus. The variant is the degree of response which in turn depends upon the intensity of the demand for readjustment. He further delineated stress into two types: (a) eustress as pleasant or curative stress, and (b) distress as unpleasant or disease producing stress. Selye (1976) demonstrated that, with stress, the adrenal cortex becomes hyperactive, and the body will react in specific patterns to this activity. This response pattern is the general adaptation syndrome.

Breggin (1964) hypothesized that the sympathomimetic symptoms or cues produced by the activity of the adrenal cortex and the increased production of epinephrine during the biological stress of anxiety becomes learned. The symptoms of anxiety then elicit or reinforce further anxiety. Each recurrent anxiety reaction and its' associated symptoms strengthen the conditioned association between anxiety and the symptoms increasing the intensity of future anxiety reactions.

Anxiety in Pregnancy and Labor

Anxiety is a common denominator in pregnancy and childbirth. The anxiety may be associated not only with the physical pain during labor and delivery, but also with the well being of the child and the anticipated role of parent. McDonald (1968), in his review of literature, noted that the most consistent findings showed a relationship between obstetric complications and higher anxiety levels. He also noted that anxiety was involved in such pathology as infertility, hyperemesis gravidarum, and toxemia.

The anxiety level tends to rise during the third trimester as fear of the birth event draws near, and this has a potential interdependent affect on the character of labor and the well-being of the fetus (Lederman et al., 1979). The research on the assessment and reduction of anxiety in the pregnant woman is extensive. The major focus has been to determine the nature and relationship of anxiety to the pregnant woman, and how anxiety can affect the process of labor and birth. The majority of literature treats the mother, fetus, and neonate as a unit, focusing on the progression of effects of anxiety from mother to fetus. This review of literature also focuses on the mother, fetus, and neonate as a unit.

The effects of epinephrine on pregnant and laboring woman have been researched for nearly half a century.

Rucker (1927) first reported that analgesic blocks containing adrenaline seemed to diminish uterine activity. Research continued to show an adverse effect of adrenaline on the uterus (Woodbury & Abreu, 1944; Woodbury, Hamilton, & Torpin, 1938).

Kaiser and Harris (1950) researched the effects of endogenous epinephrine on the uterus and found that epinephrine administered in minute amounts inhibited uterine activity in labor. Garcia and Garcia (1955) demonstrated that significant blood levels of epinephrine substances were present in apprehensive women with moderately painful labors. They also noted that levels of epinephrine were even higher in women with inertial labors. They demonstrated that there were no appreciable or identifiable blood levels of epinephrine in nonfearful patients. Garcia and Garcia (1955) noted that their study was only preliminary, with a small sample, and suggested that further investigation was necessary.

Increasing numbers of research studies are showing a relationship between anxiety during pregnancy and maternal and fetal complications. Such complications include uterine dysfunction leading to prolonged labor and fetal distress related to hypoxia. Kapp, Hornstein, and Graham (1963) found that the 18 primigravida who had had dysfunctional labors also reported more anxieties, worries, and fears than

the control group of women who had normal labors. The authors used psychological testing and chart reviews to gather data. Zucherman et al. (1963) found that women who had conflict with roles or with family members reported increased incidence of pain in labor. These women also had higher anxiety levels and required increased amounts of analgesics. The authors concluded that the results comparing the psychological variables with the obstetrical variables did not yield impressive findings. They noted that further studies should focus more attention on women during labor rather than on chart review of medications used during labor. Hetzel, Bruner, and Poidevin (1961) compared 44 primigravida with prolonged labor patterns to 54 primigravida with normal labor patterns. They noted evidence of increased bodily symptoms of anxiety in the group with prolonged labor.

Crawford (1968) hypothesized that women who reported more symptoms of muscle tension during pregnancy and demonstrated more anxiety at the onset of labor would develop uterine dysfunction or their infants would develop physiological disturbances related to hypoxia. The researcher found that in her study of 504 women, higher anxiety levels correlated 56% of the time with either uterine dysfunction or with the development of physiological disturbances in the infant. The uterine

dysfunction led to prolonged labor patterns, and fetal complications were related to hypoxia. Crawford (1968) noted that the relationship between symptoms of anxiety and fetal hypoxia supports the theory that anxiety may lead to vasoconstrictive action and decreased blood supply to the fetus.

Crawford (1968) suggested further critical reliability testing of the two instruments developed in her study. The author noted that the two instruments were not diagnostic instruments but screening tools. The suggestion was made that the two tools had the potential for helping nurses select those women who needed more emotional support throughout labor.

More recent reports in the literature attempt to explain the basic physiology of the stress response as an outpouring of catecholamines. According to Levinson and Shnider (1979), epinephrine and norepinephrine can stimulate both alpha and beta receptors in the body, and the body's response depends upon which adrenoreceptors are stimulated. Alpha responses involve smooth muscle contraction and stimulation of these sites include arteriolar and venular constriction and peripheral vascular resistance. Beta responses include smooth muscle relaxation and vasodilation of most of the vascular beds of the body. The exception to this is the uterine vascular bed. This vasculature is

normally maximally dilated. Therefore, beta stimulation will cause uterine relaxation with decreased blood supply to the muscle tissue and the fetus. The uterus and the fetus are dependent upon uterine blood flow for oxygenation, and this blood flow is dependent upon the perfusion pressure or arterial blood pressure and vascular resistance. If blood pressure falls, uterine blood flow falls; if vascular resistance is raised, uterine blood flow will fall, resulting in uterine dysfunction and possible fetal hypoxia.

Fox (1979) supported the theory that the effects of anxiety and maternal catecholamine production causes dysfunctional labor and uterine hypoperfusion. Through this mechanism fetal distress may result. The author noted that fetal catecholamines are endogenously produced throughout pregnancy, but that significant elevations in fetal and neonatal arterial catecholamine concentration appears to be associated with stress, specifically asphyxia. The effects of increased catecholamines on the fetus include increased oxygen requirements. Under the conditions of limited oxygen supply to the uterus, the increase in oxygen requirements by the fetus may serve to worsen the hypoxia. Changes in fetal cardiodynamics may lead to acidosis. This may be minimal or transient; however, in the compromised fetus this condition could be life threatening.

Recently it has become possible to measure catecholamines in humans. Lederman et al. (1978) conducted research exploring catecholamine levels and anxiety during pregnancy and labor and delivery. Spielberger's State-Trait Anxiety Inventory and levels of plasma epinephrine, norepinephrine, and cortisol were measured in 32 married primigravida during the third trimester and in labor. Elevated levels of epinephrine were significantly associated with high levels of trait anxiety during the third trimester, with lower uterine activity in labor, and consequently prolonged labor patterns. The relationship between epinephrine and slow progress of labor was explained through the adrenoreceptor theory (Fox, 1979; Lederman et al., 1978; Levinson, 1979). The prolonged labor and elevated epinephrine levels also showed a significant correlation to abnormal fetal heart rate decelerations during active labor (Lederman et al., 1978). This phenomenon was attributed to the arterial vasoconstriction with decreased blood flow and oxygen transport to the fetus. Fetal heart rate patterns during labor and lower Apgar scores at birth are reported to be related to infant development during the first year of life (Crandon, 1978; Fox, 1979; Lederman et al., 1981).

Gorsuch and Key (1974) and Beck et al. (1980) examined anxiety in conjunction with life stress in an attempt to

determine the nature and relationship of anxiety to obstetric complications. Gorsuch and Key (1974) found that, in 118 women, state anxiety correlated significantly with complications of pregnancy during the first trimester. These investigators suggested further research in the relationship of anxiety and the predictive abilities of the variables of life stress and self-reported anxiety. In addition, they noted that age and gravidity were not significantly related to state anxiety in early pregnancy or with complications of birth (Gorsuch & Key, 1974). However, in contrast to other researchers, they did not find a causal relationship between state anxiety and complications during labor.

Beck et al. (1980) investigated the possible predictive ability of attitudes, anxiety, and pregnancy complications. The findings supported the fact that maternal anxiety correlated with pregnancy outcome. State anxiety on admission to labor was significant in predicting the length of labor. The investigators stated that their findings did not support those of Gorsuch and Key (1974) which indicated that neither state nor trait anxiety upon admission to labor was related to obstetrical outcome or fetal complications. However, Beck et al. (1980) noted that the statistical techniques differed widely and may have caused the varying outcomes.

Crandon (1978) and Standley, Soule, and Copans (1979) found that the incidence of complications between anxious and non-anxious women was statistically significant. Crandon (1981) found a significantly higher incidence of fetal distress and lower Apgar scores in infants of mothers classified as highly anxious during the third trimester. The investigator stated that he would not infer a causal relationship from his research; but because of the statistically significant incidence of complications between anxious and non-anxious women, a practical and objective method to measure anxiety levels in pregnancy would be invaluable.

Standley et al. (1979) indicated that, although prenatal anxiety is considered a global construct, pregnant women have identifiable clusters of concerns or anxieties. These anxieties can be shown to be significantly related to birth and fetal outcome. The factors which demonstrated the strongest association with anxiety were the concerns for the well-being of the unborn child and fear over the approaching labor and delivery (Standley et al., 1979). Klusman (1975) found that the fear of labor and delivery could be modified to prevent complications of birth through childbirth education classes if the classes included appropriate information and intervention. They concluded that alertness to such prenatal anxieties, along with the appropriate

interventions, could facilitate a more healthful childbirth (Klusman, 1975; Standley, 1979).

Childbirth educators have long recognized and proposed methods to cope with the anxiety of pregnancy and birth. Dick-Read (1972) proposed that anxiety in pregnancy obstructed positive maternal adjustment and was predictive of obstetrical complications. Lamaze (1972), as well as other childbirth educators, focused on information provision, relaxation, and breathing to reduce the fear and tension which can lead to pain during labor. Stevens and Heide (1977) and Stone, Demchik-Stone, and Horan (1977) concluded that childbirth preparation may serve to reduce the need for analgesics in labor. Jimenez (1980) stated that childbirth preparation may provide a resource for handling the crisis situation of childbirth. Disagreement exists, however, over the effectiveness of childbirth education. Astbury (1980) focused research on identification of anxiety and preparation for childbirth to reduce that anxiety. The investigator stated that neither attendance in childbirth classes nor information treatment during labor changed the anxiety levels in 90 primigravida.

Areskog, Kjessler, and Uddenberg (1982) stated that anxious women had significant fears of childbirth. These fears centered around malformation of the child, physical damage to the child, fear of rupture of the uterus during

delivery, fear of losing control over oneself, and fear of pain.

Howe (1982) noted that current programs that teach expectant parents do serve an important function. However, these programs apparently are not always sufficient to assist parents in coping with the psychological conflicts of pregnancy or the anxieties and fears of labor.

Summary

The origin of anxiety has been debated in the literature. However, regardless of the theory of origin, the body responds to anxiety by increased adrenal cortex activity causing a rise in the levels of epinephrine. This rise of epinephrine influences arteriolar and venular constriction and smooth muscle relaxation.

Women experience varying degrees of anxiety throughout pregnancy. Research has indicated that anxiety, whatever its origin, may have an adverse effect on the character and length of a woman's labor as well as the well-being of the fetus. The underlying suggestion throughout the literature is the need for early identification of anxiety and appropriate supportive intervention.

The nursing process is based upon assessment which includes both the physiological and psychosocial status. This assessment along with screening for risk has implications for health care of the pregnant woman that will

permit the anticipatory guidance that the literature suggests is paramount to the obstetrical outcome for mother and child.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The design of this study was an ex post facto descriptive correlational one. Polit & Hungler (1983) stated that the basic purpose of this type of research is to determine relationships among variables. The most important distinction between an ex post facto design and an experimental design is "the difficulty of inferring causal relationships because of the lack of manipulative control of the independent variable" (Polit & Hungler, 1983, p. 170). The purpose of this study was to examine the relationship between anxiety and maternal and fetal physiological disturbances of labor.

Setting

Three settings were used for this study. The first setting was the prenatal classroom in a private 350 bed hospital in a large Southwestern city. Prenatal classes are taught in this room and it comfortably seats 18-20 couples. The Evaluation of Muscle Tension was given to the mothers in this room. The second setting was the private labor rooms in the same hospital; the Evaluation of Emotional Tension on Admission in Labor was administered by the admitting nurse

in this setting. The third setting was the medical records department where the researcher completed a record review of each participant.

Population and Sample

The target population for this study was all primigravida. The accessible population was all primigravida enrolled in childbirth education classes in the hospital chosen by the researcher. The sample did not include women admitted to labor and delivery for induction of labor or with a maternal temperature of 100 or above. This sample was a nonprobability convenience volunteer sample as described by Polit & Hungler (1983).

Protection of Human Subjects

Before this study was implemented, approval was obtained from the Human Subjects Review Committee at Texas Woman's University in an expedited review (Appendix A). Permission was also obtained from the Hospital Research Committee at the agency where the data were collected (Appendix B).. The following format was followed for the protection of the human rights of the participants and the agency:

1. Participation was on a voluntary basis.
2. Return of the questionnaire with the consent form was indicative of consent to participate in the study.

3. Confidentiality of the subjects was protected by a number code on the returned data and admission to labor tool.

4. A single master code list was kept by the researcher and was destroyed following the completion of the study.

5. The participants were informed that they could withdraw from the study at any time.

6. The participants were informed that their care would not be affected by participation or nonparticipation.

7. Access to the information regarding the outcome of the study was made available to the participants and the agency.

8. The names of the participants and the agency do not appear in the study.

9. The time required to answer the Evaluation of Muscle Tension tool was approximately five minutes and the Evaluation of Emotional Tension on Admission in Labor tool did not increase admission time in labor.

Instruments

Two instruments were used for this study. One was Crawford's (1968) two-part assessment tool: The Evaluation of Muscle Tension (EMT) and the Evaluation of Emotional Tension on Admission in Labor (EETAL) (Appendix C). The second instrument was the Clinical Data Sheet (Appendix D).

Permission to use the two-part assessment tool was obtained (Appendix E).

The EMT, part one of the two-part assessment tool, is a self-administered questionnaire consisting of 14 items; seven items assess signs of muscle tension and seven items assess symptoms of tension, such as diarrhea, during a two week period during the third trimester. The questionnaire asks the respondent which of the 14 discomforts listed have been experienced and how long each discomfort lasted. According to Meissner (1980), approximately 5 minutes are needed to complete the questionnaire. The responses are assigned a point value according to the number of days a symptom was present from 0 to 4 points. The points were totaled and the higher the score, the higher the incidence of muscle tension; suggesting which women may react to anxiety with physiological symptoms. The highest possible score is 56.

The second part of the two-part assessment tool is the EETAL. This tool is a four item rating scale completed by an observer. The observer (nurse) looks for four different signs of anxiety between contractions: (a) expressed fear of labor, (b) behavioral symptoms such as crying, (c) systolic blood pressure on admission to labor minus the systolic blood pressure at the last prenatal office visit, and (d) pulse rate on admission. The first two factors are

scored on a scale of 0 to 2; the second two factors are scored on a scale of 0 to 3; all factor scores are summed and the highest possible score is 10. Scores above 6 indicate that the woman is anxious and may experience problems related to vasoconstriction, particularly if her score on the muscle tension questionnaire was also high (Crawford, 1968).

The second tool, the Clinical Data Sheet developed for this study, consists of two parts. Part A of the data sheet includes information about maternal age, gestation age of the fetus, pitocin induction, pitocin augmentation, cesarean delivery for cephalopelvic disproportion (CPD), maternal temperature, meconium stained fluid, and cesarean delivery for failure to progress. This data was used to describe the subject population. Pitocin induction, cesarean delivery for CPD, and maternal temperature eliminated specific participants from the study.

Part B of the Clinical Data Sheet includes data about prolonged labor and fetal distress. These data were given a score of 0 or 1; 0 was an indicator of no problem and 1 was an indication of a problem. Prolonged labor represents the first dependent variable and fetal distress represents the second dependent variable.

Validity

The items on the Evaluation of Muscle Tension tool were developed from the Sainsbury and Gibson interview guide to assess clinical evidence of muscle tension (Crawford, 1968). There was no further report of validity.

The items for the Evaluation of Emotional Tension on Admission in Labor tool were based on a review of literature and the professional experience of Crawford (1968).

Reliability

The reliability for the Evaluation of Muscle Tension tool was based on a pilot study consisting of 59 women with a test-retest correlation of $r = .64$ (Crawford, 1968).

The reliability for the Evaluation of Emotional Tension on Admission in Labor tool was based on 39 subjects with a Pearson product-moment correlation of $r = .51$ (Crawford, 1968).

Data Collection

Permission to collect the data was obtained from the graduate school of Texas Woman's University and the agency (Appendix F). Following a verbal explanation of the study by the researcher and a request for voluntary participation (Appendix G), the Evaluation of Muscle Tension tool and consent form (Appendix H) was given out on the last night of prenatal classes. The participants were assured of confidentiality and their consent to participate was given

by return of the questionnaire with the signed consent form. The participants were asked to complete the questionnaire after class. The researcher left the room following distribution of the questionnaires and was available to answer questions outside the door. The participants placed the completed consent forms and questionnaires in an envelope provided as they left. The researcher scored the questionnaires, and the information was transferred to a master list next to a number code for each participant. The number code for each participant was placed on the Evaluation of Emotional Tension on Admission in Labor tool; this form was attached to the corresponding prenatal charts in the physicians' offices to be sent to the labor and delivery department.

A training session was held for the labor and delivery nurses prior to the delivery dates of the participants. This session was included in the monthly staff meeting held in the labor and delivery department. The nurses each received a sample copy of the EETAL and a verbal explanation (Appendix I). They were instructed to complete questions 1, 2, and 4 only; they were not to score the questionnaire. The completed questionnaires were placed in a reserved envelope in a specific file cabinet at the nurses' station, where they were picked up by the researcher. The researcher scored the EETAL and transferred the data to the master list

in the corresponding coded spaces. A record review of each participant following her delivery was conducted by the researcher to complete the Clinical Data Sheet. Upon completion of the study, the master list and all questionnaires were destroyed. The raw data for computer analysis contained the number codes only.

Treatment of Data

The information from the Clinical Data Sheet, part A, was used for the descriptive statistics such as frequency, means, and standard deviation. The scores from part B of the Clinical Data sheet were indicators of the two dependent variables of maternal and fetal physiological disturbances of labor. The score range for prolonged labor was 0 to 1. The score range for fetal distress was 0 to 1. The scores were summed and averaged to obtain mean scores. The subscores from the EMT and EETAL were summed and averaged. These scores represented the two independent variables of muscle tension and emotional tension. The two hypotheses were tested using multiple regression analysis. Multiple regression is a method for understanding the effects of two or more independent variables on a dependent measure (Polit & Hungler, 1983, p. 533). The analysis of the data was accomplished through the use of the TWU computer. The level of significance was at the .05 level.

CHAPTER 4

ANALYSIS OF DATA

An ex post facto descriptive correlational study was conducted to determine if a relationship existed between maternal anxiety during pregnancy and maternal or fetal complications of labor among primigravidae. This chapter presents a description of the sample and the findings of the study.

Description of Sample

Data utilized in this section were obtained from the Clinical Data Sheet and the EMT and EETAL. The demographic data included maternal age, gestational age, pitocin induction or augmentation, cesarean delivery with the reason for that type of delivery, meconium-stained fluid, and maternal temperature in labor. The EMT and EETAL measured the muscle tension and emotional tension present and reflected maternal anxiety.

Potential subjects were contacted on the sixth night of prenatal classes. Of those contacted, 44 agreed to participate. Of that number, 19 were eliminated: 7 were not primigravida, 4 had elective inductions, 2 had scheduled cesareans for breech presentation, 1 had a cesarean for

increased maternal temperature, and 5 failed to complete the questionnaires correctly. The final sample consisted of 25 primigravidae.

The mean age of the 25 subjects was 26.8; the youngest was 18 and the oldest was 35. The mean gestational age was 40.2, with the earliest delivery at 37 weeks gestation and the latest delivery at 42 weeks gestation.

Of the 25 subjects, 24 (96%) used medication for the discomforts of labor; one subject (4%) went through labor unmedicated. Pitocin augmentation was used with 13 (52%) of the subjects. Two subjects (8%) had cesarean deliveries; both cesareans were for failure to progress in labor. Six subjects (24%) experienced meconium-stained fluid. One subject (4%) had a twin delivery without any complication. The mean EMT score reflecting the muscle tension during the third trimester was 12. The mean EETAL score reflecting the emotional tension on admission to labor was 3. These scores represent low maternal anxiety in the participants.

Findings

The first hypothesis was that there would be a positive relationship between anxiety, as measured by the EMT and EETAL, and maternal physiological disturbances during labor. The hypothesis was tested using multiple regression. Results of the test indicate there was no significant relationship between the two measures of anxiety and the

variable of maternal physiological disturbances during labor ($F[2,22] = 1.76, p = .195$). The coefficient of multiple correlation, the strength of the relationship of the predictor variables taken together, was .37. This was less than .47, $p > .05$. Therefore, the first hypothesis was rejected.

The second hypothesis was that there would be a positive relationship between anxiety, as measured by the EMT and ETTAL, and fetal physiologic disturbances of labor. The hypothesis was tested using multiple regression. Results of the test indicate there was no significant relationship between the two measures of anxiety and the variable of fetal physiological disturbances of labor ($F[2,22] = 2.43, p = .12$). The coefficient of multiple correlation was -.43. This was less than the critical value of .470, $p > .05$. Therefore, the second hypothesis was rejected.

Summary of Findings

The findings of this study are summarized as follows:

1. No significant relationship was demonstrated between anxiety, as it was measured, and maternal physiological disturbances during labor.
2. No significant relationship was demonstrated between anxiety, as it was measured, and fetal physiological disturbances during labor.

CHAPTER 5

SUMMARY OF THE STUDY

This study was conducted to determine if a relationship exists between maternal anxiety and maternal and/or fetal physiological disturbances during labor. This chapter contains a summary of the study, discussion of the findings, conclusions, and recommendations for further study.

Summary

The purpose of this study was to determine if a relationship existed between anxiety and maternal or fetal physiological disturbances during labor. The review of literature presented studies which demonstrated relationships between anxiety and prolonged labor patterns or fetal distress.

The instruments utilized were the Evaluation of Muscle Tension during the third trimester of pregnancy, and the Evaluation of Emotional Tension on Admission in Labor. A Clinical Data form was designed to collect demographic data through a record review.

The study consisted of 25 subjects. The completed questionnaires and record review were analyzed to test the

two hypotheses:

1. Among primigravidae there are positive relationships between anxiety, as measured by the Evaluation of Muscle Tension during the third trimester and the Evaluation of Emotional Tension on Admission in Labor, and maternal physiological disturbances during labor.

2. Among primigravidae there are positive relationships between maternal anxiety, as measured by the Evaluation of Muscle Tension during the third trimester and Evaluation of Emotional Tension on Admission in Labor, and fetal physiological disturbances during labor.

The two hypotheses were tested using multiple regression. The first hypothesis was rejected. There was no significant correlation between anxiety, as it was measured, and maternal physiological disturbances during labor.

The second hypothesis was rejected. There was no significant correlation between maternal anxiety, as it was measured, and fetal physiological disturbances during labor.

Discussion of Findings

An evaluation of the findings indicated that there was no significant relationship between maternal anxiety, as it was measured, and maternal or fetal physiological disturbances during labor. Zucherman et al. (1963) and Gorsuch and Key (1974) demonstrated that anxiety was not a

predictor of obstetrical or fetal outcome. The findings of these studies, however, are not consistent with the majority of the literature.

Research in the past has consistently demonstrated a relationship between measures of anxiety and obstetric complications. The earliest research centered on the function of the uterus in the presence of increased amounts of adrenaline (Garcia & Garcia, 1955; Kaiser & Harris, 1950; Rucker, 1927; Woodbury et al., 1938). Hetzel et al. (1961), Kapp et al. (1963), Crawford (1968), and Beck et al. (1980) stated that there was a causal relationship between levels of anxiety and dysfunctional labors. Crandon (1978), Standly et al. (1979), Fox (1979), and Lederman et al. (1978) demonstrated that anxiety levels have a potential interdependent affect on the character of labor and well-being of the fetus.

The findings of this study may be due to the small sample size. In addition, the sample was taken from mothers attending prenatal classes. Klusman (1975) and Jimenez (1980) stated that anxiety may be modified through childbirth classes. There was no control in this study for the possible positive influence of prenatal education and support. The level of maternal anxiety was low in the sample and may have influenced the findings. The use of volunteer convenience sampling may have drawn more motivated

women into the study and influenced the findings. Also, in this study, there was no control for medication to augment labor or to relieve the discomforts of labor. These limitations may have influenced the findings. The tool to measure anxiety in this study had a low reliability value which also may have had an impact on the findings.

Conclusions and Implications

The findings demonstrated no relationship between anxiety, as it was measured, and maternal or fetal well-being in labor. Based on the findings of this study, anxiety is not a predictor of either maternal or fetal physiological disturbances during labor. These conclusions are not consistent with the majority of past research. McDonald (1968), Cassidy (1974), and Hassid (1978) stated that anxiety builds during pregnancy and peaks during the third trimester and in labor. Standley et al. (1979) stated that anxiety is a global construct of pregnancy. Fox (1979) suggested that maternal anxiety be a priority of obstetrical care. Other research has demonstrated a correlation between anxiety and maternal or fetal well-being (Lederman et al., 1978; Levinson & Shnider, 1979). Considering the inconsistent findings of this study, anxiety still should be addressed. Another study using a more reliable tool, as well as more controls, would be appropriate.

The implications for nursing practice still relate to a need for awareness and assessment of anxiety in the obstetrical patient. Lamaze (1952), Klusman (1975), Stevens and Heide (1977), and Standley et al. (1979) have stated that prenatal anxiety can be modified. Nurses need to continue to provide the educational and emotional support to clients both during pregnancy and in labor regardless of the predictive value of anxiety.

Recommendations for Further Study

The recommendations for further study include:

1. Developing a more effective assessment tools for measuring anxiety during pregnancy and labor.
2. Replicating the study using a larger sample.
3. Conducting a similar study comparing women who have not taken childbirth classes with those women who have taken classes.
4. Conducting a similar study introducing controls for sampling, childbirth preparation, and medications used to relieve the discomforts of labor or to augment labor.

APPENDIX A

TEXAS WOMAN'S UNIVERSITY
Box 23717, TWU Station
Denton, Texas 76204

1810 Inwood Road
Dallas Inwood Campus

HUMAN SUBJECTS REVIEW COMMITTEE

Name of Investigator: Carol M. Arnold Center: Dallas

Address: 704A Bruton Bends Date: 5/8/84

Richardson, Texas 75081

Dear Ms. Arnold:

Your study entitled Effects of Anxiety on Labor and the Fetus

has been reviewed by a committee of the Human Subjects Review Committee and it appears to meet our requirements in regard to protection of the individual's rights.

Please be reminded that both the University and the Department of Health, Education, and Welfare regulations typically require that signatures indicating informed consent be obtained from all human subjects in your studies. These are to be filed with the Human Subjects Review Committee. Any exception to this requirement is noted below. Furthermore, according to DHEW regulations, another review by the Committee is required if your project changes.

Any special provisions pertaining to your study are noted below:

Add to informed consent form: No medical service or compensation is provided to subjects by the University as a result of injury from participation in research.

Add to informed consent form: I UNDERSTAND THAT THE RETURN OF MY QUESTIONNAIRE CONSTITUTES MY INFORMED CONSENT TO ACT AS A SUBJECT IN THIS RESEARCH.

____ The filing of signatures of subjects with the Human Subjects
Review Committee is not required.

☒ Other: Make application read - participation or nonparticipation
will not affect the care you or your baby will receive.

____ No special provisions apply.

Sincerely,

Estelle D. Kumpf

Chairman, Human Subjects
Review Committee

at Dallas

APPENDIX B

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____

GRANTS TO Carol M. Arnold, RN, B.S.N.
a student enrolled in a program of nursing leading to a
Master's Degree at Texas Woman's University, the privilege
of its facilities in order to study the following
problem.

The effects of anxiety on maternal or fetal physiological
disturbances of labor.

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the
final report.
2. The names of consultative or administrative
personnel in the agency (may) (may not) be
identified in the final report.
3. The agency (wants) (does not want) a conference
with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the
completed report to be circulated through
interlibrary loan.

5. Other Approved by OB Gyn Section 6/5/84

Date

6/7/84

Signature of Agency Personnel

Carol M. Arnold
Signature of Student

Margaret McElroy
Signature of Faculty Advisor

*Fill out & sign 3 copies to be distributed: Original-
student; 1st copy-Agency; 2nd copy-TWU School of Nursing

APPENDIX C

EVALUATING MUSCLE TENSION

The answers to the following questions will help us to plan for your care during labor. You can complete this questionnaire in 5 minutes. Please answer each question as accurately as possible. Simply think back over the past 2 weeks and check the number of days that you remember having each of the following discomforts.

ON HOW MANY DAYS DURING THE PAST 2 WEEKS HAVE YOU FELT	0	1-3	DAYS 4-7	8-11	12-14
1. any pain, stiffness or aching in your back that lasted an hour or more?	—	—	—	—	—
2. any pain, stiffness, aching or cramping in your neck or shoulders?	—	—	—	—	—
3. any pain, stiffness, aching or cramping in your arms?	—	—	—	—	—
4. any tightness or pain around your heart?	—	—	—	—	—
5. sick at your stomach or nauseated?	—	—	—	—	—
6. tense, restless, and unable to relax?	—	—	—	—	—
7. irritable and touchy?	—	—	—	—	—
ON HOW MANY DAYS DURING THE PAST 2 WEEKS HAVE YOU NOTICED	0	1-3	DAYS 4-7	8-11	12-14
1. any diarrhea or watery bowel movements?	—	—	—	—	—
2. that things looked blurred?	—	—	—	—	—
3. any flushing or felt any hot sensations?	—	—	—	—	—
4. a feeling of numbness in your hands or face?	—	—	—	—	—
5. any tremor or trembling feeling in your hands?	—	—	—	—	—
6. any clicking or ringing in your ears?	—	—	—	—	—
7. yourself jumping at noises or walking with a jerk?	—	—	—	—	—

TOTAL

This tool was devised by Mary I. Crawford, RN, EdD (Columbia University School of Nursing) and is reproduced with permission of the estate of Mary I. Crawford.

Your expected due date is _____

EVALUATING EMOTIONAL TENSION ON ADMISSION IN LABOR

While admitting this woman in labor, evaluate the following four signs between contractions, then assign a score of 0, 1, 2, or 3 for each sign. A cumulative score of 10 indicates the highest possible emotional tension.

SIGNS	0	1	2	3	SCORE
1. Expressed fear of labor	none expressed	expressed fear for baby, or expressed fear but unable to describe	expressed fear for self (long labor, pain hemorrhage, death		
2. Behavioral signs -voice tremulous, with quivers or breaks -pupils dilated to at least $\frac{1}{2}$ of iris diameter -crying -seems near tears -unable to concentrate on what you say -jittery, easily startled -acts as if fearful -seems overly shy or timid	none of these signs noted	one of these signs noted	two or more of these signs noted		
3. Systolic blood pressure on admission in labor minus systolic B/P at last clinic visit	+3	+3 to +15	+16 to +28	more than +28	
4. Pulse rate on admission in labor	less than 87	87 - 97	98 - 108	more than 108	

TOTAL _____

This tool was devised by Mary I. Crawford, RN, EdD (Columbia University School of Nursing) and is reproduced with permission of the estate of Mary I. Crawford.

APPENDIX D

CLINICAL DATA

This information is to be filled in by the nurse investigator.

PART A

Age _____

Maternal temperature _____

Gestational age of fetus _____

YES

NO

Pitocin Augmentation _____

Pitocin Induction _____

Meconium-stained fluid _____

C/S for CPD _____

C/S for failure to progress _____

1

0

PART B

Prolonged labor _____

Fetal distress _____

APPENDIX E

Columbia University in the City of New York | New York, N.Y. 10032

SCHOOL OF NURSING

630 West 168th Street

November 22, 1983

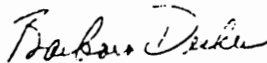
Ms. Carol Arnold, R.N.
Texas Woman's University
704 A Bruton Bends
Richardson, Texas 75081

Dear Ms. Arnold:

This is in reply to your request for permission to use the late Dr. Mary Crawford's "The Evaluation of Muscle Tension Questionnaire and the Evaluation of Emotional Tension on Admission in Labor" as the tool for your masters thesis at Texas Women's University School of Nursing.

You may use the tool as long as the author is properly credited. I am sorry, we do not have any information on reliability and validity of the instrument.

Yours truly,



Barbara Decker, C.N.M.
Director,
Graduate Nurse-Midwifery Major

BD/ec

APPENDIX F



P.O. Box 22479, Denton, Texas 76204 (817) 383-2302, Metro 434-1757, Tex-An 834-2133

THE GRADUATE SCHOOL

July 26, 1984

Mrs. Carol M. Arnold
704 A Bruton Bends
Richardson, TX 75081

Dear Mrs. Arnold:

I have received and approved the Prospectus for your research project. Best wishes to you in the research and writing of your project.

Sincerely yours,

Leslie M. Thompson
Leslie M. Thompson
Provost

tb

cc Dr. Margaret McElroy
Dr. Anne Gudmundsen

APPENDIX G

Explanation of Study to Subjects

My name is Carol Arnold, I am a graduate nursing student at Texas Woman's University and I am conducting a study to determine the relationship of anxiety to problems women may have in labor. I am hoping to show that the nurse can key in on an anxious woman and help prevent the problems of anxiety that may lead to prolonged labor or fetal distress. If you agree to participate, you will be asked to: (a) complete a 14 item questionnaire evaluating any discomforts you may have had during the past two weeks; (b) have an assessment of your blood pressure, pulse, and behavioral responses made during your admission in labor by your nurse; and (c) approve a review of your labor record following your delivery for information on you and your baby by myself as the researcher.

There are no right or wrong answers to the questionnaires, or the admission procedures. All the data collected will be kept confidential, no names will appear in the final report. The questionnaires will be coded and a master list of names and codes will be made and kept by me. Following the completion of the study, all questionnaires and the master list will be destroyed. You do not have to participate and nonparticipation will not affect your care.

If you are willing to participate, you will be given a consent form and a questionnaire. Please fill them out and place them in the envelope provided. This should take approximately 5 to 10 minutes of your time. I will remain in the hallway to answer any of your questions. You may withdraw from the study at any time without any penalty. My home phone is _____. The results of the study will be available in the library at Texas Woman's University, Dallas campus. Are there any questions?

Thank you.

APPENDIX H

Consent Form
TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

Consent to Act as a Subject for Research and Investigation:

The following information is to be read to or read by the subject. One copy of this form, signed, must be given to each subject. A second copy must be retained by the investigator for filing with the Chairman of the Human Subjects Review Committee. A third copy may be made for the investigator's files.

1. I hereby authorize Carol Arnold or her representative to perform the following procedures: (a) administer a self-evaluation questionnaire, (b) assessment of my B/P, pulse and behavioral responses on admission to labor, and (c) review my labor and delivery record for information about myself and my infant.
2. The procedure or investigation listed in Paragraph 1 has been explained to me by Carol Arnold.
3. (a) I understand that the procedures or investigations described in Paragraph 1 involve the following possible risks or discomforts: embarrassment related to the improper release of data.

(b) I understand that the procedures and investigation described in Paragraph 1 have the following potential benefits to myself and/or others: the findings of this study may contribute to the body of knowledge in nursing and may provide direction for better nursing intervention.

(c) I understand that - no medical service or compensation is provided to subjects by the university as a result of injury from participation in research.
4. An offer to answer all of my questions regarding the study has been made. If alternative procedures are more advantageous to me, they have been explained. I understand that I may terminate my participation in the study at any time without any penalty or alteration in my care. Participation or nonparticipation will not affect the care you or your baby will receive.

Subjects's Signature

Date

APPENDIX I

Explanation to Nurses

My name is Carol Arnold, I am a graduate nursing student at Texas Woman's University and am conducting a study to look at the relationship of maternal anxiety to prolonged labor and fetal complications related to hypoxia. I am asking for your help in the data collection by using the Evaluation of Emotional Tension on Admission in Labor tool. This would require you to observe the woman between contractions for four factors: (a) expressed fear of labor, (b) behavioral signs of anxiety, (c) blood pressure on admission, and (d) pulse rate on admission. To complete the evaluation sheet you will check the appropriate category (0 to 2 for question 1 and 2; and 0 to 3 for question 4). You do not have to score the questionnaire. I will complete question 3 and score the questionnaire during the record review for each participant. The use of this evaluation tool should not increase the admission time. After you complete the tool, it will be placed in an envelope with my name on it in the file cabinet at the nurses station.

I am expecting to show that the nurse can key in on an anxious woman through the use of this tool and hopefully

prevent the problems of uterine hypoperfusion resulting in prolonged labor or fetal distress.

I am hoping to have 30 subjects and those women who have consented to participate will have one of these evaluation tools attached to their prenatal charts for you to use.

If you are interested, the results will be made available to you. Are there any questions?

Thank you.

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