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Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Perinatal Loss

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by

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A Dissertation submitted in partial satisfaction of
the requirements for the degree
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Each person whose signature appears below certifies that this dissertation in his/her opinion is adequate, in scope and quality, as a dissertation for the degree Doctor of Philosophy.

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CONTENT

FIGURES

TABLES

ABBREVIATIONS

NCB	Nurse Caring Behaviors
PSA	Pregnancy Specific Anxiety
MFA	Maternal-Fetal Attachment
CBI	Caring Beahviors Inventory
PAS	Pregnancy Anxiety Scale
MAAS	Maternal Antenatal Attachment Scale
GA	General Anxiety
IPIP	International Personality Item Pool
PGIS	Perinatal Grief Intensity Scale
PBGS	Perinatal Bereavement Grief Scale
IRB	Institutional Review Board
OB	Obstetrician
MHS	MemorialCare Health System
RA	Research Assistant
IV(s)	Independent Variable(s)
MDV(s)	Maternal Demographic Variable(s)
PHI	Patient Health Information
PI	Principal Investigator
MFM	Maternal Fetal Medicine
CNS	Clinical Nurse Specialist

ABSTRACT OF THE DISSERTATION

Effects of Nurse Caring Behaviors on
Mothers' Anxiety and Attachment in Pregnancy Following Perinatal Loss

by

Joyce G. Oliverio Volsch
Doctor of Philosophy, Graduate Program in Nursing
Loma Linda University, June 2015
Dr. Elizabeth Bossert, Chairperson

Childbirth is usually a joyful experience for most families. However, women who have experienced the death of a baby during pregnancy often view subsequent pregnancies with fear and apprehension. It is estimated that $59\% - 86\%$ of women with previous perinatal loss will become pregnant again (O'Leary, 2004). There is limited research on what bereaved parents perceive as caring behaviors by nurses following the human experience of perinatal loss.

The purpose of this research study was to determine if nurse caring behaviors (NCB) during the perinatal loss event affect pregnancy-specific anxiety (PSA) and maternal-fetal attachment (MFA) in women who are pregnant following a perinatal loss while controlling for socio-demographic and general anxiety influences. The study was guided by a theoretical framework drawn from Swanson's Caring model and middle range theory of caring. The research design was correlational, non-experimental using surveys with established scales applied to a non-probability, non-randomized, convenience sample. Nurse caring was measured using the 24-item Caring Behaviors Inventory-24 (CBI-24). Pregnancy specific anxiety was measured using the 9-item Pregnancy Anxiety Scale (PAS). Maternal fetal attachment was measured using the 19-item Maternal Antenatal Attachment Scale (MAAS). General anxiety (GA) was measured using the 10-item questionnaire, International Personality Item Pool (IPIP). A

final sample size of 33 pregnant women with a history of perinatal loss completed the surveys.

In addition to descriptive statistics of sample demographics, correlational analysis was conducted to study the interrelationships between the study variables, and multiple regressions were used to predict pregnancy specific anxiety and maternal fetal attachment. The results showed a significant relationship between NCB and PSA at $p = .005$. Also, NCB significantly contributed in predicting PSA at $p = .008$ after controlling for maternal demographic variables and generalized anxiety. NCB was not a statistically significant predictor for MFA.

This study provides information to improve individualized and meaningful patient care interventions for pregnant women following a previous loss. As front line health care providers, nurses have the greatest opportunity to directly affect the patient's perception of the caring experience.

CHAPTER ONE

INTRODUCTIONI

Research Problem and Background

Childbirth is a significant and usually joyful experience for most families.
However, those who have suffered prior perinatal losses often view subsequent
pregnancies with fear and apprehension (Armstrong, 2002). In spite of great
improvements in perinatal care, perinatal loss in the United States for 2006 is reported as
10.49 per 1000 live births and fetal loss occurrence as 6.05 out of every 1000 live births
(National Center for Health Statistics, Vital Statistics for the United States, Centers of
Disease Control and Prevention, 2012). The effects of perinatal loss are far reaching,
affecting mothers and families of all socio-economic groups, all demographic groups, and
all age groups including those with planned and unplanned pregnancies (Robinson,
Baker, & Nackerud, 1999).

Perinatal loss is a traumatic event, often sudden and unexpected. Families are
forced to integrate the simultaneous experiences of birth and death. Future pregnancy
experiences are enveloped by a shroud of ambivalence, specifically the potential effect of
this loss on parenting subsequent children (Armstrong, 2002; Gold, 2007; O'Leary,
2004). It is estimated that 59 % – 86% of women with previous perinatal loss will
become pregnant again (DiMarco, Renker, Medas, Bertosa, & Goranitis, 2002; O'Leary,
2004; Säflund, Sjögren, & Wredling, 2004; Trulsson & Rådestad, 2004; Uren & Wastell,
2002). It is possible that the care and understanding shown by nurses and health providers
during the time of and following the perinatal loss may influence and facilitate the
parents' grieving process.

There is some evidence in the literature to suggest that women who are pregnant following a previous perinatal loss may withhold emotions and attachment to the unborn baby because of increased concern for its viability and well being (Cote-Arsenault & Mahlangu, 1999; Tsartsara & Johnson, 2006). DeBackere, Hill, and Kavanaugh (2008) assert that withholding emotional attachment to the unborn child in pregnancy subsequent to loss appears more prevalent when the reason for the prior loss cannot be fully explained or avoided.

As front line health care providers, nurses are in a unique position to directly influence families' experiences of feeling either supported or helpless during and after perinatal loss (Gold, 2007; Lundqvist, Nilstun, & Dykes, 2002). Although multiple caregivers may come into contact with these families, nurses spend the greatest amount of time providing comprehensive care (Calhoun, 1994) and, thus, have the many opportunities to affect the patient's perception of the caring experience. There is a limited amount of research on what bereaved parents perceive as caring behaviors by nurses following the human experience of perinatal loss.

Purpose and Aims of the Study

The purpose of this research study was to determine whether nurse caring behaviors (NCB) during the perinatal loss event affect pregnancy-specific anxiety (PSA) and maternal-fetal attachment (MFA) in women who are pregnant following a perinatal loss.

The aims of this research study were to:

1) Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict pregnancy-specific anxiety (PSA) in women who are pregnant

following their loss.

2) Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict maternal-fetal attachment (MFA) in women who are pregnant following their loss.

This results of the study provided data that led to recommendations for improved patient care through staff education in developing individualized and meaningful interventions to better meet the needs of patients and their families.

Definitions of Major Constructs

Perinatal Loss

Variations in the precise definition of perinatal mortality exist specifically concerning the issue of inclusion or exclusion of early fetal or late neonatal fatalities. This study adopted the World Health Organization's (2005) definition of perinatal death, which is "the number of stillbirths and deaths in the first week of life per 1,000 live births" with stillbirths defined as any fetal death after 20 weeks of gestation or 500 grams (Armstrong & Hutti, 1998; Franche & Mikail, 1999; Geller, Kerns, & Klie, 2004).

Caring

From Florence Nightingale's time to the present day, caring remains a central and underlying domain in the body of knowledge and practice for the profession of nursing (Leininger, 2006; Watson, 2006). Swanson's (1991) theory of caring claims that caring and healing are rooted in a deep valuing of what it means to be a person and a commitment to honor the wholeness of self and others. This study adopts Swanson's (2006) definition of caring as a "nurturing way of relating to a valued 'other' toward whom one feels a personal sense of commitment and responsibility."

Swanson's research was heavily influenced by her mentor, Jean Watson, who viewed caring as the moral ideal of nursing where there is the utmost concern for human dignity and the preservation of humanity (Watson, 2006). It embraced Blattner's (1981) idea that the central feature of a caring relationship is the person because "caring is achieved by a conscious and intuitive opening of oneself to another, by purposefully trusting and sharing energy, experience, techniques, and knowledge" (p. 70).

Caring is a complex phenomenon and is integral to health and the healing process (Leninger, 1984). Caring begins within each individual nurse, manifested in the way (s)he relates to patients, their families, and colleagues. This framework of caring aligned with this researcher's beliefs that caring is comprised of human acts and processes that are concerned with helping others to meet the needs of those who require care (Leninger, 1984).

Caring Behaviors

Bruce's (1962) study of stillbirth provided one of the earliest descriptions by women of nurses' caring behaviors as expressions of sympathy, demonstrations of caring, and presence. Wolf, Giardino, Osborne, and Ambrose (1994) defined nurse caring behaviors as interactive moments of shared vulnerability between nurse and patient. Swanson-Kauffman (1986) concluded from her research with women experiencing miscarriage, that women desired caregivers who recognized the individualized meaning of the pregnancy, who were empathetic, facilitated their expression of grief, met their basic needs, and maintained their hope for successful future pregnancies.

Pregnancy Specific Anxiety

Cote-Arsenault and Mahlangu (1999) defined pregnancy specific anxiety as

concurrent feelings of concern for the baby's well-being and the possible negative outcome of the current pregnancy. Previous pregnancy loss experiences create painful reality checks for pregnant women that pregnancy is not always normal and babies do not always survive. This anxiety can overshadow the entire pregnancy experience resulting in women protecting themselves by maintaining a more distant emotional attachment in the current pregnancy.

Maternal-Fetal Attachment

This research adopted Condon's (1993) definition of maternal-fetal attachment as a progressive relationship that evolves over time as the woman experiences the developing life within her, evoking emotions that are not yet affected by the infant's temperament or the realities and complexities of parenting. As a result, the pregnant woman demonstrates caring and committed behaviors toward the fetus during pregnancy including nurturance, comforting, and physical preparation (Salisbury, Law, LaGasse, & Lester, 2003).

Significance of the Study

This topic is significant because it is estimated that 59% – 86% of women with previous perinatal loss will become pregnant again (O'Leary, 2004; Cordle & Prettyman, 1994). Previous loss can have profound and multiple effects on subsequent pregnancies. Research on the meaning of the pregnancy and the experience of perinatal loss has revealed difficulties with emotional adjustment as parents struggle in their response to the loss and their grief (Armstrong, 2002). Research findings suggest that women who are pregnant subsequent to a previous perinatal loss may withhold emotional attachment to the unborn baby during the current pregnancy as a consequence of heightened concern

for the baby's viability and well-being (Cote-Arsenault & Mahlangu, 1999; Tsartsara &

Johnson, 2006). Parents struggle with the balance between being hopeful while worrying

about another potential loss (DeBackere, Hill, & Kavanaugh, 2008).

Nurses' words and actions at the time of the pregnancy loss are deeply embedded

within their patients' memory in spite of elapsed time (Lundqvist, Nilstun, & Dykes,

2002; Ujda & Bendiksen, 2000), which place nurses in a unique position to directly affect

families' experiences of feeling either supported or helpless after the death of their infant

(Gold, 2007; Lundqvist, Nilstun, & Dykes, 2002). Women who have experienced

perinatal loss expressed a need for the health care team to understand their emotions by

validating and acknowledging the significance of their loss (Armstrong, 2002; Armstrong

2004; Côté-Arsenault & Dombeck, 2001) and not make light of their concerns during the

subsequent pregnancy (Côté-Arsenault & Morrison-Beedy, 2001).

Implications for Knowledge Development for Nursing

This study holds implications for knowledge development in multiple areas of

nursing practice. These areas include:

Nursing Education

Clinical Staff Education

Understanding the experience from the mother's perspective provided information

on what she finds to be helpful and caring behaviors by nurses. Specialized curricula can

be developed by clinical educators incorporating patient input to better support patient

and family needs during perinatal bereavement including cultural traditions and religious

rituals. Training and orientation should be expanded to include patient needs during

subsequent pregnancies. Critical discussions should include how staff interactions affect

patient anxiety during the loss experience and in subsequent pregnancies following the loss.

Academic Education

It is essential that today's nursing professors immerse students in the language of what it means to experience wholeness throughout the continuum of care. Incorporating caring communication into nursing curricula can be a strategy to engage nursing students on how to demonstrate caring behaviors and attitudes towards patients within their practice especially for those experiencing loss. Direct attention on the effects of patients' perceptions of nurse caring behaviors during perinatal loss emphasizes the critical role nurses play in promoting, restoring, or maintaining optimal wellness for the patients they care for (Swanson & Wojnar, 2004; Swanson, 2006).

Nursing Management

Perinatal nurse managers might consider the process of staff selection assigned to patients experiencing fetal demise or neonatal death and develop a career track for staff with demonstrated skills and strengths in supporting these patients and their families versus the traditional assignment by rotation. Competency in perinatal bereavement can be developed into a subspecialty of perinatal nursing. Use of behavioral-based selection tools might be considered as a component of the hiring process. Characteristics identified as "nurse caring" traits should be incorporated into the interview selection tool. Nurse managers should also ensure procedures are in place to support staff assigned to care for bereaved patients and families to prevent burn out. There are opportunities to explore potential effects of nurse caring behaviors on patient satisfaction as well as nurse satisfaction.

Multi-disciplinary Team Collaboration

Lundqvist, Nilstun, and Dykes (2002) found strained communication between health care professionals and parents facing the death of their infant. The authors observed this was partially due to mothers' feelings of ambivalence toward the suffering of their dying infant as some mothers avoided a relationship with their dying infant because they believed it caused more stress than they could manage. These behaviors in the mothers resulted in feelings of failure and stress among health care professionals who strongly believe mothers should touch or hold their dying and dead newborn.

Lemmer, Boyd, and Forrest (1991) supported ongoing actions that value and promote a team approach to caring for dying infants and their bereaved parents such as interdisciplinary care conferences that communicated and clarified information about fetal/infant prognosis, plan of care, parental preferences, and parental coping abilities. Change of shift communication and time management with patient assignments require management attention to develop strategies that facilitate and strengthen interprofessional communication. Together, nurses and other healthcare team members provide invaluable contributions to the holistic care of bereaved parents and families during perinatal loss.

Nursing Practice

Caring is a crucial element for quality healthcare and is a critical component in the patient's satisfaction with their healthcare experience (Tanking, 2010). Adopting the use of a nurse caring theory-based framework as a guide for clinical practice is a starting point. This ensures that nurse caring behaviors which have been systematically and scientifically derived support a foundation for evidence-based nursing practice. This

provides a substantive base to plan, implement, and evaluate the most appropriate and individualized nursing interventions for patients (Finch, 2008).

Nursing Research

Continued discussion and research are necessary to further explore the theoretical meaning of nurse caring and its importance to the nursing profession and the patients who receive nursing care. Patients defined caring by what the nurse does for them and what the nurse is like as a person during patient-nurse interactions (Tanking, 2010). These caring moment episodes provide rich opportunities to further explore the connections between patient experience and nurse caring behaviors in further defining the meaning of quality nursing care.

Application of nurse caring theory within the clinical setting by practicing nurses and nursing faculty promote role modeling of caring behaviors and professional interactions with patients, students, novice nurses, and other health care team members. The ethic of caring must be taught and practiced by nurses and nurse educators as the quality of health care and its effect on quality of life are created by caregivers (Marini, 1999).

Overview of Remaining Chapters

In the chapters that follow, there is a comprehensive review and critique of the pertinent literature. Chapter two includes a synthesis of this literature, including a critique that demonstrates the need for the present study, a philosophical perspective that supports this research, application of a theoretical framework, and a summary of the research literature. Chapter three details the research design, research questions, and the methods for analyzing the data. Chapters four and five, respectively, include the results section

with data analysis and the discussion of the findings along with the limitations of the study and conclusion.

CHAPTER TWO

REVIEW OF RELEVANT LITERATURE

Introduction to the Literature

This chapter was organized into five sections: 1) overview on perinatal loss and parental bereavement, 2) conceptual discussion of pregnancy after loss, 3) research findings on key variables of interest: pregnancy specific anxiety, maternal fetal attachment, and nurse caring behaviors in pregnancy following loss, 4) the study's selected theoretical framework including relevant nursing theories and 5) a summary of the literature.

Overview on Perinatal Loss

Babies represent hope - for the future, for a better life, for greater opportunities, for fulfilling dreams, a way of starting over or making amends (Arnold & Gemma, 1994). In spite of great improvements in perinatal care, perinatal loss in the United States for 2006 was reported at 10.49 per 1000 live births (National Center for Health Statistics, Vital Statistics for the United States, Centers of Disease Control and Prevention, 2012). Perinatal loss encompasses infant death that occurs due to miscarriage, stillbirth, or neonatal death (Robinson, Baker, & Nackerud, 1999). Further, perinatal loss has no boundaries, affecting mothers and families of all socio-economic groups, all demographic groups, and all age groups including those with planned and unplanned pregnancies (Robinson, Baker, & Nackerud, 1999). In the United States, there is a 10% − 20% incidence of early (the first 12 weeks following conception) fetal loss among all known pregnancies, followed by a 2% loss in the second trimester, and a 1% loss in the perinatal

period as either a stillbirth or an early neonatal death (Armstrong & Hutti, 1998; Franche & Mikail, 1999; Geller, Kerns, & Klie, 2004; Scotchie & Fritz, 2006).

For most parents, pregnancy loss is the loss of a child even when the loss occurred early in pregnancy (Rando, 1986, 1993). Perinatal loss is a loss of self, competence, and power through guilt because the child or potential child is part of the parent's identity. That part of the parent's identity is lost when perinatal loss occurs (Klass, 1988). Grief literature indicated that the loss of one's parents represents loss of the past and loss of peers as loss of the present, but the loss of a child signifies loss of the future (Arnold & Gemma, 1994; de Vries, 2001; Rando, 1986, 1993; Worden, 2002).

Parental Bereavement and Grief

Parental grief is recognized as the most intense and overwhelming of all griefs because the loss of a child impacts not only the individual parent but the parent dyad, family system, and society itself (Rando, 1986; Riches & Dawson, 2000; Davies, 2004). A fetal or infant death is a traumatic loss – often sudden and unexpected, sometimes forcing families to integrate the almost simultaneous experiences of birth and death (Gold, 2007). Such a death is regarded as against the natural order of things in a society where it is assumed that parents die before their children (Davies, 2004).

Research on the meaning of the pregnancy and the experience of perinatal loss indicated difficulties with emotional adjustment as parents struggle in their response to the loss and their grief (Armstrong, 2002). Often perinatal losses are followed by periods of intense grieving for the wished-for child, loss of innocence about pregnancy, and an increased sense of vulnerability to a woman's self-confidence about her ability to become a mother (Cote-Arsenault & Morrison-Beedy, 2001; Cote-Arsenault & Freije, 2004). The

loss of hopes, dreams, and role and relationship expectations when a child dies was described as similar to an amputation – something that was a part of you and then is suddenly cut out off (de Vries, 2001; Klass & Marwitt, 1989).

Hutti, de Pacheco, & Smith (1989) described the intensity of grief parents experience from perinatal loss through application of Dougherty's (1984) Model of Cognitive Representation, which explained that it is the individual's perception of the event, not the actual facts surrounding the event, that influenced subsequent actions and behaviors. Hutti et al. (1989) developed the Perinatal Grief Intensity Scale (PGIS) to predict grief intensity following a miscarriage. It was tested on a convenience sample of 186 women who suffered a miscarriage before 16 weeks of gestation in the previous 12 – 18 months. Three factors were identified as predictive of grief intensity: 1) the reality of the pregnancy and the baby within; 2) congruence between the actual loss experience and the desired experienced ("How it ought to have been"); and 3) and the ability of the woman to make decisions to increase the congruence. In an initial validation study, the PGIS demonstrated acceptable reliability of .82 and construct validity (Hutti, et al, 1989).

Ritscher and Neugaebauer (2002) developed the Perinatal Bereavement Grief Scale (PBGS) to measure grief following reproductive loss based on the degree to which the individual yearns for the lost pregnancy and lost baby. The intensity of grief was associated with the individual's desire to maintain an attachment with the baby and the degree of investment the individual had in the child. Convergent validity was demonstrated by its association with measures of attachment and investment in the child. An initial validation study demonstrated high internal consistency and testing-retest

reliability. The meaning of the pregnancy to the parents as well as the experience of the perinatal loss profoundly influenced their grief response to the loss (Armstrong, 2001).

Uniqueness of Perinatal Loss

A distinguishing characteristic of perinatal loss from all other losses is that it occurs at the inception of life (Cote-Arsenault, 1995). When a baby dies, the hopes and dreams for the future for that baby die too. There are no memories, mementos, or photographs to mark milestones. If the loss is early in pregnancy, there is no object to hold or mourn because the products of conception have no human form (Peppers & Knapp, 1980b). There are limited to non-existent cultural norms in our society that support acknowledgment of the significance of these events such as funerals or memorial services, sympathy cards, etc. Minimal attention is paid to the possibility of fetal or newborn death in books about pregnancy or in childbirth preparation classes (Cote-Arsenault, 1995).

Perinatal death was described by Bourne (1968) as a "nonevent" because there is grief without a body to mourn. Brier (2008) described a distinguishing feature of perinatal loss from other losses in the preponderant emphasis on times ahead rather than remembered times. Following a perinatal loss, the focus was on images of a lost anticipated future including the hopes and dreams about what was to be rather than on past experiences (Brier, 2008). Yearning after perinatal loss was another distinguishing feature in its focus on mental construction of a relationship and future rather than actual, past, directly shared experiences (Brier, 2008). Parents kept track of the historical events that would have occurred in their child's life indicating a continuing connection to the "empty history" of the child (de Vries, 2001).

Another distinct feature of pregnancy loss was the abrupt interruption of the woman's planned life course including her developmental transition into parenthood and selection of childbirth spacing. In Rosenblatt's (1996) research on perinatal loss, it was not only the loss of the baby that was grieved. Perinatal loss also encompassed loss of the role of mother, the desire to have children, or of the self. It is important to keep in mind that every woman will vary in her response to her loss and the level of grief intensity.

Pregnancy usually equates with hope, joy, and excitement in anticipation of new life. When the pregnancy ends with the death of a baby, people are uncomfortable because they don't know what to say or what to do and say nothing at all, often never mentioning the pregnancy or baby again as if the event never occurred (Cote-Arsenault, 1995). Contact and communication with the mother decreases or is avoided altogether by friends, family, and healthcare providers leaving her isolated in her grief. Lewis (1979) described this "conspiracy of silence" as a burden for the woman because it conveys the message that her loss is unimportant and unworthy of a significant emotional response.

Pregnancy Following Perinatal Loss

Perinatal loss is a traumatic event, often sudden and unexpected, forcing families to integrate the simultaneous experiences of birth and death while throwing a shroud upon future pregnancy experiences, specifically how this loss may affect parenting of the subsequent child (Armstrong, 2002; Gold, 2007; O'Leary, 2004). At least 80% of the women who experience a perinatal loss will become pregnant again, often within 18 months of the loss event (Janssen, de Graauw, Bakker, & Hoogduin, 1996).

Previous perinatal loss changes a woman's perspective on pregnancy and reality; a life-altering event which results in feelings of vulnerability, worry, fear, and uncertainty

about the outcome of subsequent pregnancies. (Côté-Arsenault & Mahlangu, 1999; Côté-Arsenault & Marshall, 2000, Côté-Arsenault & Morrison-Beedy, 2001). Decisions to attempt a subsequent pregnancy often cause conflicting emotions (Brost & Kenney, 1992; Cote-Arsenault & Marshall, 2000). Women who become pregnant again chose to do so because of their desire to be a mother and not as a response to forget their dead baby (Schweibert & Kirk, 1989; Cote-Arsenault, 1995). Côté-Arsenault and Marshall (2000) described the subsequent pregnancy experience for women as "having one foot in the pregnancy and one foot out."

Subsequent pregnancy following perinatal loss seemed to affect the duration of grief (Klier, Gellar, & Ritsher, 2002). Cuisiner, Janssen, DeGraauw, Baker, & Hoogduin (1996) administered questionnaires to 2140 pregnant women in a prospective study. Of the respondents, 227 lost a baby by miscarriage (85%) or perinatal death (15%). These women were administered the pregnancy grief scale at four post-loss assessment intervals. The women who had a subsequent pregnancy by the time of these assessments displayed a significant decrease in grief levels compared with women who had not conceived. Franche (2001) compared the level of active grief, difficulty coping, and despair in 25 women (and their partners) who had become pregnant after a pregnancy loss with the level of active grief, difficulty coping, and despair in 25 women (and their partners) who had not become pregnant. Women who were pregnant experienced significantly lower levels of despair and difficulty coping. Grief intensity, however, remained high for both groups. This suggested that a subsequent pregnancy seemed to lessen the active grief, impairing effects of grief while mourning still continued. These studies may suggest that key elements of perinatal loss also include loss of the role of

pregnant woman and mother so that when these roles are reestablished, symptoms of active grief lessen (Brier, 2009).

Fear

Families described daily worries to include concern about the health of baby, waiting to lose the baby, holding back emotions, acknowledging that the loss happened and can happen again. Parents struggled with the balance between being hopeful while worrying about another potential loss (DeBackere, Hill, & Kavanaugh, 2008).

Côté-Arsenault and Dombeck (2001) explored the experiences of 72 women who had lost babies during pregnancy and found that these women acknowledged that a successful outcome was not guaranteed. The study described guarded emotions and a more distant emotional attachment being used as a protective mechanism by the women with the aim to surpass significant milestones within the current pregnancy. The overriding fear was of a recurrence of pregnancy loss manifested in a guarded attachment to the new pregnancy (Cote-Arsenault & Mahlangu, 1999).

Pregnancy-Specific Anxiety

Studies on pregnancy after perinatal loss consistently revealed the highly anxious nature of these pregnancies (Côté-Arsenault & Marshall, 2000; Hense, 1994; Phipps, 1985). This was noted over two decades ago in Phipps' (1985) retrospective review of 15 couples' pregnancy experiences after previous losses. One striking feature of these pregnancies, for example was evidence of a "suspension of commitment to pregnancy" (p. 248) and fear that disaster could strike at any minute. Moreover, the couples exhibited heightened states of hypervigilence, some made plans for the baby's death, just in case. Additional findings by Phipps included self-protective and controlling behaviors,

increased skepticism, and a lack of naiveté about the pregnancy experience. Theut, Pederson, Zaslow, and Rabinovich (1988) conducted a prospective study of pregnancy after loss. A group of parents in their eighth month of pregnancy with a history of perinatal loss was compared to a group of first-time parents in their eighth month of pregnancy without a history of perinatal loss on depression, trait anxiety, and anxiety specific to pregnancy concerns. The couples with history of perinatal loss did not differ significantly on any variables except anxiety specific to pregnancy. Theut et al. (1988) concluded that heightened anxiety in pregnancy after loss was specific to concerns about the pregnancy, not general anxiety, and that even after a successful birth, mothers with loss histories are more concerned about their new baby's health and about differentiating this baby from the baby that died when compared to a no-loss group. Although dated now, these findings generally have been supported in subsequent studies. In these later studies, investigators have used varying designs, instruments, and theoretical models, which, taken together, provided a more detailed understanding of pregnancy-specific anxiety.

Franche and Mikail (1999) used a quantitative, cross-sectional survey to compare the emotional adjustment of pregnant couples with and without a history of previous perinatal loss. The sample size consisted of 31 mothers/28 fathers in the loss group and 31 mothers/23 fathers in the control (no loss) group. The loss group reported at least two previous losses. At the time of the study, women were between $10 - 24$ weeks gestation. Instruments used included the Pregnancy Outcome Questionnaire, Fetal Health Locus of Control Scale, Beck Depression Inventory, Depressive Experiences Questionnaire, Abbreviated Dyadic Adjustment Scale, and Spielberger's State-Trait Anxiety Inventory.

Results showed more depressive symptomatology and higher pregnancy-specific anxiety

for both men and women in the loss group compared to those in the no loss group.

Women who believed that they had control over the health of their fetus showed higher

levels of pregnancy-specific anxiety. Regression analysis in this study revealed that for

the group with previous loss, pregnancy-specific anxiety was associated with their belief

that their behavior affected the health of their fetus ($R^2 = 0.19$, $F = 6.75$, $p < .01$)

compared to women without previous loss whose pregnancy-specific anxiety was

associated with the belief that health professionals' behavior affected the health of their

fetus. These findings lend support for the potential impact nurse caring behaviors may

have on pregnancy-specific anxiety in a subsequent pregnancy.

Hughes, Turton, and Evans (1999) conducted a quantitative study to assess

women's symptoms of depression and anxiety during pregnancy up through one

postpartum year for the pregnancy after stillbirth to assess the relevance of time since

loss. Instruments used included Edinburgh Postnatal Depression Scale, Beck Depression

Inventory, and Spielberger's State-Trait Anxiety Scale with data collected at third

trimester, six weeks, six months, and 12 months after birth. Sample size included 106

women in 53 matched pairs of pregnant women with loss history and the control group of

pregnant women without loss. Study results showed that women with loss history had

significantly higher levels of depression and state anxiety in third trimester than the

controls. Women who conceived within 12 months after loss had significantly higher risk

of depression and state anxiety during the next pregnancy carried through 12 months

postpartum compared to women whose conception occurred with a longer lapse of time

since the loss. This study's strong research design using assessments over time increased the confidence in the findings.

Armstrong and Hutti (1998) conducted a quantitative, comparative, descriptive study with 31 expectant mothers to examine the relationship of pregnancy specific anxiety between women who experienced a perinatal loss ($n = 16$) and women pregnant for the first time ($n = 15$). Instruments used included the CES Depression Scale, Pregnancy Specific Outcome Questionnaire, and the Prenatal Attachment Inventory with data collected between 16 and 32 weeks of pregnancy. Study results showed that pregnant women who had experienced a previous perinatal loss showed increased levels of pregnancy anxiety in the current pregnancy when compared to women pregnant for the first time. This was a relatively small study, however, necessitating the need for validation, which Armstrong (2002) undertook. This follow up, quantitative study comprised of 103 couples compared three groups (first pregnancy, subsequent pregnancy with history of perinatal loss, and prior successful pregnancy) in evaluating the association of previous pregnancy loss to parents' level of depressive symptoms, pregnancy-specific anxiety, and prenatal attachment in a subsequent pregnancy. Sample characteristics showed 90% Caucasian, 93% married, upper-middle income with most college-educated, between ages 18 – 45 years. Average gestational age at loss was 22.6 weeks. The loss group reported an average of two perinatal losses prior to the current pregnancy. A cross-sectional survey method via in-person and telephone interviews was used with data collected between 16 and 32 weeks of pregnancy using the following instruments: Prenatal Attachment Inventory, Pregnancy Specific Outcome Questionnaire, CES-Depression Scale. Study results found pregnancy specific anxiety higher in women

as well as in the group with a history of loss. Parents with a loss history also showed more depressive symptoms than parents in their first pregnancy. Armstrong (2002) found the degree of pregnancy anxiety was higher in women with a history of loss, when compared with women without a history of perinatal loss. These studies began to solidify the importance of understanding the prevalence of pregnancy specific anxiety following loss and paved the way for continuing and more detailed work.

Côté –Arsenault and Dombeck (2001) concluded higher pregnancy anxiety in subsequent pregnancies when the mother assigned more fetal personhood to the loss. Côté –Arsenault (2003) determined that although mothers shared similar levels of optimism about their pregnancy, those with a history of perinatal loss had increased levels of pregnancy anxiety than those without a history of loss. A study by Cote-Arsenault (2007) demonstrated that anxiety decreased as the pregnancy advanced. This same study highlighted pregnant women's view of the previous perinatal loss as a threat to the current pregnancy, and that threat appraisal, not studied previously, strongly predicted pregnancy anxiety. This quantitative, longitudinal, correlational study examined the patterns of threat appraisal, coping, and emotional states of women at three time points across pregnancy after perinatal loss to test Lazarus' theoretical model of coping, stress, and emotions. Participants included 82 women, 88% Caucasian ages 20 – 42 years, majority were married or partnered with an average of two years college education and median annual income range of $60,000 - $79,000. The mean number of pregnancies for the sample size was 4.3 with average gestation at loss being 11.1 weeks. The mean number of living children for the sample was 1 with 2.3 years as the mean since the previous loss event. Data were collected at 10 weeks, 20 – 25 weeks, and 30 –

35 weeks gestation via in-person or telephone and mail using the Moneyham Threat Index, Ways of Coping Checklist (revised), Pregnancy Anxiety Scale, Multiple Affect Adjective Checklist (revised), and Stress in Life Scale. Results from Côté –Arsenault's (2007) study showed that anxiety in the pregnancy subsequent to loss should be expected and addressed appropriately throughout the current pregnancy. Threat appraisal strongly predicted pregnancy anxiety and was correlated with assigned fetal personhood and gestational age of past loss. Although pregnancy anxiety decreased over time; threat appraisal, coping, and other emotions remained stable across the pregnancy. This was a particularly strong study, one in which a well-established theoretical model was tested, and assessments were taken over time.

Tsartsara and Johnson (2006) conducted a quantitative, longitudinal, descriptive study with data collection at first trimester and third trimester to evaluate the specific implications of miscarriage on subsequent pregnancy and to determine whether these adverse effects overrode the effects of other reproductive history variables. The study included 35 expectant women, 10 with a history of miscarriage, 69% were married, ages ranged from 19 – 44 years, and 57% had no other living children. Instruments used included Pregnancy Outcome Questionnaire, Maternal Antenatal Attachment Scale, and Demographic/Reproductive History Questionnaire. Tsartsara and Johnson (2006) found pregnant women with histories of early pregnancy loss exhibited higher anxiety in early pregnancy versus late pregnancy although women without any children showed higher pregnancy concerns even if there was no history of loss. Although also a small study, it provided new information about timing of pregnancy and anxiety.

Summary and Discussion of Findings

Review of the literature, clearly, demonstrated anxiety as the dominating characteristic feature in pregnancy following a previous loss. Unfortunately, despite this solid work, the cause(s) underlying the anxiety was not as clear. There are multiple contributing factors besides "simple" bereavement over the previous perinatal loss: fear of losing the next baby; fear of not being able to cope with another loss; and fear for one's own health, both physical and emotional. In fact, women report paying diligent attention to every aspect of the pregnancy, wanting more frequent contact with the care provider, and being more active and directive in their own care as compared with their pregnancies prior to loss (Armstrong & Hutti, 1998; Cote-Arsenault, 2003).

There simply is no question that nurses need to be aware of the difficult emotions accompanying grief after perinatal loss because the unique and heightened anxiety during a subsequent pregnancy can easily overwhelm and affect the woman's emotional state during her current pregnancy. Nurse involvement in all of this has not been well explored, however. None of the previous studies, for example, has addressed nurse caring behaviors and their possible effects on the anxiety levels of women pregnant following a previous perinatal loss. Nurses who acknowledge a woman's previous perinatal loss experiences could assist this vulnerable group by creating opportunities for the expression of emotions during her current pregnancy and, perhaps, reduce anxiety. As front line healthcare providers, nurses are in a unique position to directly affect families' experiences of feeling either supported or helpless during and after perinatal loss (Gold, 2007; Lundqvist, Nilstun, & Dykes, 2002). In the present study, a link between nurse caring behaviors and pregnancy specific anxiety in pregnancy subsequent to loss was

explored. Much has been written about the 'nature' of anxiety in these women, yet little empirical research is available to guide nurses in addressing this anxiety.

Maternal-Fetal Attachment

Overview of Attachment Theory

Attachment theory originated within psychoanalytical thought with Freud (1940) describing attachment as a basic survival and sensual instinct, elicited through a powerful, unique, and enduring maternal-infant relationship. Bowlby (1969) first explored theory development and research on attachment in the maternal-child relationship. He sought to explain why children reared in institutions were socially dysfunctional. According to Bowlby (1969, 1973, 1979, 1988), based on the initial attachment relationship experiences, a child generates an expectation framework that guides behavior and social expectations throughout life.

Ainsworth contributed to the knowledge base on attachment by developing instruments to measure attachment in infant, children, and adults (Ainsworth, 1971). As the individual grows and matures, the original internal models of self and others also grow and mature (Ainsworth, 1982, 1989). While infants and children require physical proximity to the attachment figure, adults may be assured in awareness of accessibility through alternate options like telephone, postal or electronic communication as well as photographs and other memorabilia (Ainsworth, 1982, 1989; Ainsworth, Blehar, Waters, & Wall, 1978). For adults, the internal representations themselves provide a sense of safety and security.

During pregnancy, the internal representation of the growing child enables the parent to develop a growing relationship with the developing fetus. Condon (1985) identified this fetal attachment of expectant fathers and mothers to include characteristics of adult attachment. He developed a model of parental attachment and supported his model through

research in the areas of maternal/fetal attachment and maternal-infant attachment (Condon, 1993).

Bowlby

The original theory of maternal-child attachment defined attachment as an emotional tie or psychological bond to a specific object. Bowlby (1958) argued that although instinctual, the mother-infant relationship is interactive, with the infant seeking proximity to a caretaker who responds by providing a safe, loving, and sensitive environment. Bowlby proposed that reciprocity and proximity influenced maternal-child attachment. According to Bowlby, seeking proximity or contact with the attachment figure by the infant was seen as the hallmark of attachment. Reciprocity included deliberate interaction between the mother and her infant with the goal of maintaining contact (proximity) or social interaction. Bowlby theorized that parents looked forward to becoming attached to their infant, even before birth, by expecting to spend time with their newborn and by setting limits on situations that would lead to distancing.

This theory emerged from reflective observations that Bowlby, a psychoanalyst and research scientist, made about differences in children who were reared in institutions vs. non-institutionalized children. Bowlby investigated the reasons why children reared in institutions were more likely to be socially dysfunctional. He observed and recorded behaviors in children relating to their mothers and noted differences in attachment. He proposed that the primary caregiver, usually the mother, is crucial to healthy child development. As a product of his research, he found that maternal deprivation and separation in the early years of a child's development were damaging. Bowlby observed that the removal of the child's central attachment figure caused emotional and developmental processes to be disrupted (Bowlby, 1969). Bowlby (1980) stated that

25

during the course of healthy development, attachment behaviors lead to the development of affectional bonds. Optimal attachment in early infancy has been identified as an integral component in the future development of a child (Oppenheim, Koren-Karie, & Sagi-Schwartz, 2007).

Ainsworth

In the nineteen sixties, Ainsworth, a Canadian psychologist and colleague of Bowlby, advanced the theory of attachment by providing the first empirical evidence of support for the attachment relationship between an infant and the mother. Prior studies observed only the emotional and physical reaction of the infant in the absence of the mother. To understand the relationship of attachment between a mother and her child, Ainsworth exposed infants to the "strange situation," meaning a situation unfamiliar to the infant. After observing infants and their mothers, she developed a tool to measure the complexity of attachment behaviors. The "strange situation" was a twenty-minute laboratory-based assessment that involved two brief separations and two three-minute reunions with the parent. The focus was on the infant's behavior, especially during the reunion, where differences were measured in terms of the strategies used to cope with this stressful situation. The researcher not only observed the mother's responsiveness to her child and the child's responses, but also looked for patterns in the children's behavior (Ainsworth, Blehar, Waters, & Wall, 1978).

Based on her observations, Ainsworth developed a classification of patterns of infant attachment, which included: 1) secure, 2) avoidant, 3) ambivalent/resistant and 4) disorganized/disoriented. The most favorable of these is the secure pattern, in which the infant can be separated from its mother and not feel threatened. Ainsworth concluded that

the responsive mother provides her baby with a secure base from which the child is able to go forth and explore the world, providing empirical evidence for the importance of positive maternal behaviors and maternal-infant attachment to the health and well-being of the child (Ainsworth, Blehar, Waters, & Wall, 1978).

Attachment, broadly described by Ainsworth (1971) is an affectional relationship that one person develops with another specific person. Both human and animal research has demonstrated that affiliation and attachment between a mother and her newborn affects the cognitive, affective, and behavioral development of the infant-maternal outcomes (Ainsworth, 1971).

Condon

Five characteristics of attachment relationships among adults were identified by Condon (1985) and include: (a) concern for the attachment figure's protection and wellbeing in addition to the desire to meet the attachment figure's needs; (b) a feeling of pleasure derived from proximity or interaction with the attachment figure; (c) a yearning to know, appreciate, and understand the attachment figure; (d) a need to safeguard and cherish someone beyond one's own wellbeing; and (e) suffering and distress related to actual or imagined loss or separation from the attachment figure. These five dispositions can be observed in adult to adult relationships as well as in familial and parent to infant and child relationships. These characteristics are regarded as indicators of the presence of attachment and it is thought that through these processes attachment begins and is fulfilled. The Hierarchical Model of Parental Attachment was the first model to support the process of prenatal parental attachment (Condon, 1993).

Maternal-Fetal Attachment

The concept of maternal-fetal attachment has developed over the past 25 years yet continues to remain not well studied or defined. The limited research on maternal-fetal attachment may be due to methodological problems including inadequate operational definitions of the construct; small, homogenous samples; and lack of sensitivity to cultural issues (Salisbury, Law, LaGasse, & Lester, 2003). Although experts agree that maternal/fetal attachment is vital to a healthy pregnancy and contributes to positive pregnancy outcomes, just how this occurs continues to plague researchers (Cannella, 2005).

Maternal-fetal affiliation and attachment in humans begins during pregnancy with increasing infant attachment over time (Mercer & Ferketich, 1994; Muller, 1996). Leifer (1977) was among the first to explore the phenomenon of prenatal attachment between the mother and the fetus. Study participants included 19 first-time expectant mothers who were interviewed and completed questionnaires during each trimester of their pregnancies and again during the postpartum period. Results indicated that attachment patterns correlated to the three identified levels of the expectant mothers' psychological functioning during her pregnancy. The findings showed that the higher functioning women developed an intense emotional attachment to their infants, moderately functioning women had a lesser emotional attachment, and the lowest functioning women had minimal attachment. The emotional bond began early in pregnancy and intensified with the perception of fetal movement, a finding confirmed in later work by Leifer (1980) and Lumley (1980, 1982).

Rubin (1977) proposed that the affectional tie between a mother and child noted at birth is developed and structured during pregnancy and continues developing throughout the lifespan of both mother and child. This was supported by Lumley (1980) who interviewed 30 Australian primigravida mothers to investigate maternal estimation of the fetus during each trimester, during the early postpartum, and at three months. During the first trimester, one third of the women identified their fetus as a real individual, reported that they would grieve if they miscarried, and also indicated their willingness to change their own behaviors to protect and safeguard their growing fetus. After quickening, all but two of the participants identified their fetus as a real individual. Further work by Lumley (1982) supported the finding that fetal movement enhances maternal fetal attachment.

The work by Leifer (1977, 1980) and Lumley (1980, 1982) and Rubin's (1975) tasks of pregnant women provided the foundational base for further investigation into maternal-fetal attachment. In 1981, Cranley created and developed the Maternal Fetal Attachment (MFA) scale to evaluate and measure MFA. The instrument was originally administered to 71 women during the last six weeks of their pregnancy. Thirty-two percent of the women indicated that they thought about and interacted with their fetus most of the time and 78% reported engaging in MFA scale behaviors and attitudes at various times throughout their pregnancies. According to Cranley (1981), prenatal attachment can be translated into different maternal behaviors such as the differentiation of self and the fetus, the interactions with the fetus, attributing characteristics and intentions to the fetus, forgetting oneself in favor of the pregnancy and the fact of seeing oneself as a mother.

Condon (1985) conducted a pilot study with 54 couples across the three trimesters of a first pregnancy to determine the parent's attitudes toward parenthood, any emotional and physical symptoms, and to compare the fathers' and mothers' attitudes toward the growing fetus. Results indicated that parent-fetus attachment increased over the course of the pregnancy, especially after fetal movement was experienced. Condon found that the internal representations of the fetus and the reported emotional responses of the parents were similar. Surprisingly, men reported a greater awareness of the reality of the fetus than the women. However, behaviorally women spent more time talking about and interacting with the growing fetus. A later study conducted by Condon (1993) surveyed 112 expectant couples to determine their emotional attachment to the fetus. Their responses provided evidence that the parents desired closeness and interaction with the growing fetus and experienced sadness with the potential for separation or loss of the growing child. The results of this study indicated that the emotional attachment was independent of gestational time.

Fuller (1989, 1990) demonstrated a significant positive relationship between maternal-fetal attachment and maternal-infant attachment. Participants included 32 Canadian women during their last six weeks of pregnancy and two to three days postpartum. An important longitudinal study by Bloom (1995) of 79 low-risk pregnant women during later pregnancy and early postpartum stages found a positive relationship between maternal-fetal attachment during the third trimester of pregnancy and demonstrated affectionate behaviors toward the infant after birth. These studies contribute to the evidence of development of attachment prior to the birth experience and continued growing attachment during the postpartum period.

Maternal-fetal attachment, as conceptualized by Solomon and George (1996), is developmental in nature with the pregnant woman progressively moving from care recipient to ultimate care provider, a process further facilitated through a supportive and loving relationship. As pregnancy progresses, the woman becomes increasingly preoccupied with the physical realities of pregnancy and actively directs her attention on the developing fetal life, perceiving the fetus in increasingly human terms, attributing characteristics and personality traits to the "baby" (Benedek, 1959). Rubin (1975), identifying pregnancy work of the expectant woman, described this "binding in" (p. 145) process as being aware and learning about the growing infant. From her observations, it was evident that women exhibit pride, pleasure, protection, and a desire to know and meet the needs of their growing infant. Shieh, Kravitz, and Wang (2001) identified three critical attributes of prenatal MFA in their concept analysis. The first attribute, *cognitive attachment*, is the desire to know the baby. The second attribute of MFA is *affective attachment*, which is the pleasure related to interactions with the unborn child. *Altruistic attachment* is the third attribute of MFA and describes the desire to protect the fetus.

The birth and survival of a healthy baby, whose actions are programmed to evoke nurturing behaviors within the caretaker, continue to develop and intensify the attachment relationship (Sandbrook & Adamson-Macedo, 2004). This process is abruptly interrupted when a perinatal death occurs, and the ramifications of this loss are not well understood, in particular (a) whether attachment to the next child (and the child to the mother) could be disrupted (b) and if so, whether nursing interventions that address this potential disruption could improve outcomes for the subsequent pregnancy.

Effects of Previous Perinatal Loss on Maternal-Fetal Attachment

Only within the last 15 years has the literature addressed perinatal loss and its effect on subsequent pregnancy, specifically in how loss may affect parenting of the subsequent child. Côté-Arsenault and Marshall (2000) described the subsequent pregnancy experience for women as "having one foot in the pregnancy and one foot out." Perinatal loss changes a woman's perspective on pregnancy and reality; a life-altering event, which results in feelings of vulnerability, worry, fear, and uncertainty about the outcome of subsequent pregnancies. (Côté-Arsenault & Mahlangu, 1999; Côté-Arsenault & Marshall, 2000; Côté-Arsenault & Morrison-Beedy, 2001). Additionally, limited attention has been given to parents' experience during a subsequent pregnancy, their concerns about the outcome of the pregnancy, and the effect of emotional distress on prenatal attachment.

Unfortunately, research findings conflict regarding the effects on prenatal attachment in a subsequent pregnancy following previous prenatal loss, which challenges health professionals who could intervene. Armstrong and Hutti (1998) conducted a quantitative, comparative, descriptive study with 31 expectant mothers separated into two groups, women who experienced a perinatal loss ($n = 16$) and women pregnant for the first time ($n = 15$), to examine the development of prenatal attachment. Mean age of the sample population was 29 years, mean education was 15 years, 68% were employed, 66% claimed annual incomes > $45,000, all but one participant was married, 68% of pregnancies were planned. Separate group characteristics showed the loss group to be older, more educated, less likely to work, claimed higher income, and more likely to have a planned pregnancy than the non-loss group. Instruments used included the CES-

Depression Scale, Pregnancy Specific Outcome Questionnaire, and the Prenatal Attachment Inventory with data collected between 16 and 32 weeks of pregnancy. Study results showed that pregnant women who had experienced a previous perinatal loss showed decreased levels of prenatal attachment in the current pregnancy when compared to pregnant women without previous loss.

Further demonstrations and clarifications appeared in other studies. Côté-Arsenault and Dombeck (2001) explored the experiences of 72 pregnant women who had experienced previous perinatal losses and found that assignment of fetal personhood to the previous loss predicted higher pregnancy anxiety in the subsequent pregnancy. The overriding fear was of a recurrence of pregnancy loss resulting in the woman being more cautious of emotional investment in subsequent pregnancies. The study described guarded emotions and a more distant emotional attachment being used as a protective mechanism by the women with the aim to surpass significant milestones within the current pregnancy.

A phenomenological study by Sandbrook and Adamson-Macedo (2004) revealed that the overwhelming emotion experienced by their sample of pregnant women was the innate desire to protect their unborn child. The birth and survival of a healthy baby, whose actions are programmed to evoke nurturing behaviors within the caretaker, continues to develop and intensify the attachment relationship (Sandbrook& Adamson-Macedo, 2004). This process is abruptly interrupted when a perinatal loss occurs because it represents the breaking of a preexisting attachment bond to someone who would eventually have contributed to the bereaved individual's life (Archer, 1999; O'Leary, 2004).

However, Armstrong (2002) disputed these findings concluding that the level of prenatal attachment was the same in women with and without a history of perinatal loss. Armstrong's (2002) quantitative study - comprised of 103 couples - compared three groups (first pregnancy, subsequent pregnancy with history of perinatal loss, and prior successful pregnancy) in evaluating the association of previous pregnancy loss to parents' level of depressive symptoms, pregnancy-specific anxiety, and prenatal attachment in a subsequent pregnancy. Sample characteristics showed 90% Caucasian, 93% married, upper-middle income with most college-educated, between ages 18 – 45 years. Average gestational age at loss was 22.6 weeks. The loss group reported an average of two perinatal losses prior to the current pregnancy. A cross-sectional survey method via in-person and telephone interviews was used with data collected between 16 and 32 weeks of pregnancy using the following instruments: Prenatal Attachment Inventory, Pregnancy Specific Outcome Questionnaire, CES-Depression Scale. Study results found that prenatal attachment did not differ among the groups although mothers demonstrated higher attachment in all groups when compared to fathers . On closer review, it was noted that the finding of no difference in prenatal attachment was based on a combined score of both parents. Also, the average mean score for prenatal attachment was lowest for parents with previous loss with the women in this group showing the largest standard deviation. This could indicate that some women with previous loss had attachment issues in their subsequent pregnancy.

Tsartsara and Johnson's (2006) supported Armstrong's findings in their quantitative, longitudinal, descriptive study that looked at the specific implications of previous loss on subsequent pregnancy. The study included 35 expectant women, 10 with

a history of miscarriage, 69% were married, ages ranged from 19 – 44 years, and 57%

had no other living children. Data collection occurred at first trimester and third trimester

using the Pregnancy Outcome Questionnaire, Maternal Antenatal Attachment Scale, and

Demographic/Reproductive History Questionnaire. Study conclusions reported that

regardless of loss history, prenatal attachment occurred the same in women during the

third trimester of pregnancy.

Although the two studies by Armstrong (2002) and Tsartsara and Johnson (2006)

dispute specific findings and sadly may discourage health professionals from attending to

issues surrounding previous loss, the occurrence of attachment disruptions in some

women, at least, is evident and warrants further exploration. It is important to note that

the attachment literature indicated that both the mother and father develop emotional

attachment to the growing fetus. When a pregnancy loss occurs, it can be expected that

parents with established attachment to their fetus will experience grief because

attachment and grief are intimately intertwined. The perceived strength of the attachment

bond will affect the anxiety and grief experienced with the loss (Bowlby, 1969; Feeney &

Noller, 1996). Attachment theory posits that attachment is a precursor of loss and grief.

This relationship is critical for healthcare providers to understand in order to effectively

support parents experiencing perinatal loss and pregnancy after loss.

Children born after loss have been viewed in different ways such as replacement

child syndrome, whereas others refer to a "vulnerable child syndrome," meaning that

parents perceive the new infant needing special care to protect him/her from harm

(O'Leary, 2004). Some mothers were found to be more diligent and overprotective with

subsequent children (Cote-Arsenault, 1999). Babies born subsequent to loss have been

shown to have disorganized attachments to their mothers (Heller & Zeanah, 1999). Of the

19 women with previous perinatal losses and their 12-month old babies in this study,

45% of the infants assessed exhibited disorganized behaviors. Based on other middle-

class samples, the expected rate for this phenomenon was 15%. Insecure or disorganized

attachment relationships may be a risk factor for maladaptation such as role reversal

between school-aged children and their mothers or clinical disorders of attachment

(Heller & Zeanah, 1999). Some studies suggest potential attachment disorders between

the mother and subsequent child one year postpartum as a result of unresolved grief

(Fonagy, 2000; Heller & Zeanah, 1999). These studies, in contrast to those preceding,

suggest that previous loss may have profound consequences. These study findings are

important because they suggest there may be a role for nursing interventions to

potentially influence the development of prenatal attachment during pregnancy following

perinatal loss. If maternal fetal attachment is affected for women experiencing pregnancy

after perinatal loss, there may be implications not only for the family but for society as

well.

Summary and Discussion of Findings

Researchers have studied a vast array of variables in relation to MFA because of

its important implications for the mother-child relationship and for the child's growth and

development (Cranley, 1981). The importance of maternal/fetal attachment is not in

question. It is a fundamentally accepted principle that mothers are instrumental to the

health and welfare of their child and that attachment is an important part of this process

(Laxton-Kane & Slade, 2002; Mercer, Ferketich, May, De Joseph, & Sollid, 1988;

Salisbury, Law, LaGasse, & Lester, 2003; Wadhwa, 2005). However, there has been

limited to absent efforts to organize, integrate, and synthesize study findings on MFA into a rational and coherent pattern of disciplinary knowledge to provide guidance and information to advance nursing theory, interventions, patient care, and public policy within the area of maternal child health (Yarcheski, Mahon, Yarcheski, Hanks, & Cannella, 2009). Also much of the research on maternal-fetal attachment was conducted over 25 years ago and does not reflect the major changes in cultural and technological approaches to childbearing. Further research is needed to explore how this attachment develops, what are the precursors, and what can health care professionals do to promote this bond.

Additionally, limited attention has been given to parents' experience during a subsequent pregnancy or to their concerns about the outcome of the pregnancy and the effect of emotional distress on prenatal attachment. Complicating matters are the inconsistencies and gaps in the research findings to understand how best to address previous loss and the effect(s) on a subsequent pregnancy. The research reviewed did not provide sufficient information for a conclusion regarding if or how maternal fetal attachment to the unborn child is affected when a woman has a pregnancy after perinatal loss. What is evident in this body of research, however, is that the issue of maternal fetal attachment in women pregnant following a previous perinatal loss is viewed as enough of a concern to warrant continuing studies on ways of addressing this. Especially useful will be linking nurse caring behaviors as predictive interventions – which have not been explored in the literature – as this could play an important role in affecting maternal fetal attachment in pregnancy subsequent to loss.

There is no question that nurses must be aware of the difficult emotions surrounding perinatal loss can easily overwhelm and interfere with the woman's prenatal attachment with her new baby during her current pregnancy. Nurse involvement in all of this has not been well studied, however. None of the previous studies, for example, have addressed nurse caring behaviors and their possible effects on the maternal-fetal attachment in women pregnant following a previous perinatal loss. Nurses who acknowledge a woman's previous perinatal loss experience could assist this vulnerable group by creating opportunities for the expression of emotions during her current pregnancy and, perhaps, facilitate maternal-fetal attachment. As front line healthcare providers, nurses are in a unique position to directly affect families' experiences of feeling either supported or helpless during and after perinatal loss (Gold, 2007; Lundqvist, Nilstun, & Dykes, 2002). In the present study, a link between nurse caring behaviors and maternal-fetal attachment in pregnancy subsequent to loss was explored. Although the literature is rich in discussion on attachment and maternal-fetal attachment, little empirical research is available to guide nurses in facilitating maternal-fetal attachment in pregnancy after loss.

Maternal Demographic Variables

Demographic variables have been explored as predictors for maternal fetal attachment with contradictory results. In a sample of 153 high-risk and 218 low-risk women, Mercer and colleagues (1988) reported that maternal age, socioeconomic status, higher education, and race positively predicted maternal-fetal attachment. However some researchers (Grace, 1989; Lindgren, 2001) found a negative correlation while other researchers (Cranley, 1981; Kemp & Page, 1987; White, Wilson, Elander, & Person,

1999) found no correlations between maternal-fetal attachment and the variables of age and socioeconomic status. The mixed findings suggest that perhaps the homogeneity of these study samples and the differing data collection strategies detract from the generalizability of these findings. The majority of studies investigating the relationship between prior reproductive losses, including elective abortions, and psychological morbidity have not found an association (Friedman & Gath, 1989; Klier et al., 2000; Neugebauer et al., 1997).

Several studies reveal that women who were younger, in a first and planned pregnancy, married, and with a positive mood state scored higher on antenatal attachment scores (Condon & Corkindale, 1997; Fuller, Moore, & Lester, 1993; Koniak-Griffin, 1988; Siddiqui & Hagglof, 2000). In general, maternal age, education level, occupational status, and socioeconomic status have not held up as strong predictors of emotional distress following reproductive loss (Klier, et al., 2002; Lasker & Toedter, 1991; Prettyman, et al., 1993; Thapur & Thapur, 1992). There exists conflicting evidence regarding the role of marital status, with at least one study finding that unmarried women are more likely to experience psychiatric difficulties (Friedman & Gath, 1989), while other have found no association (Klier, et al., 2002; Neugebauer et al., 1997; Prettyman et al., 1993; Thapur & Thapur, 1992). Whether having living children serves as a protective factor against intense grief and development of psychopathology remains unclear. Some of the earlier studies of psychological distress found that having living children lessened distress (Kirkley-Best, 1981; Neugebauer et al., 1997); others did not find a relationship (LaRoche et al., 1984).

Gestational age is thought to contribute to a positive correlation with prenatal attachment. Evidence suggests that as gestational age advances so does prenatal attachment (Bloom, 1998; Heiddrich & Cranley, 1989; Hjelmstedt, Widstrom, & Collins, 2006; Lindgren, 2001). There are inconsistent findings between gestational age at time of loss and psychological distress such as anxiety (Franche, 2001; Kennell et al., 1970; Klier, et al., 2002; Neugebauer et al., 1997; Prettyman et al., 1993; Thapur & Thapur, 1992). These inconsistencies are likely due to methodological limitations in the studies such as small sample size, retrospective data collection, varied assessment instruments, and lack of comparison groups.

Studies on the influence of social support on attachment demonstrate mixed results. Some studies suggest a positive correlation with prenatal attachment (Cranley, 1981; Cranley, 1984) while other studies report no correlation (Koniak-Griffin, 1988; Mercer, Fertetich, May, DeJoseph, & Sollid, 1988). The concept of social support is a body of knowledge beyond the scope of this study and will not be investigated. In this study, MDVs of interest included the number of pregnancies, number of live children, age at time of previous loss, gestational age at time of previous loss, and length of time between previous loss and current pregnancy.

Caring

Caring was described by Mayeroff (1971) as helping the other to grow in a full, personal sense with its central elements as knowing, patience, honesty, trust, humility, hope, and courage. Mayeroff identified the special feature required when caring for a person as including the ability to understand the person and his/her world from within their perspective. Nursing scholars further explored these elements as reflected in

40

Blattner's (1981) emphasis of the nursing profession's focus on the caring relationship between the nurse and patient. "Caring is achieved by a conscious and intuitive opening of oneself to another, by purposefully trusting and sharing energy, experience, techniques, and knowledge (Blattner, p 70). Caring is central to most nursing interventions, providing the moral and ethical basis of nursing, and the essence of nursing (Benner & Wrubel, 1989; Condon, 1988; Watson, 2006).

Leninger (1984) stated that "care is the essence and the central, unifying, and dominant domain to characterize nursing." Jean Watson's (2006) transpersonal caring relationship seeks to connect with and embrace the soul of the other through the processes of caring and healing and being in authentic relationship in the moment. Her viewpoint is that caring is the moral ideal of nursing where there is the utmost concern for human dignity and the preservation of humanity. Caring, according to Swanson (2006) is a "nurturing way of relating to a valued 'other' toward whom one feels personal sense of commitment and responsibility."

Patients' Perceptions of Health Professionals' Behaviors
Following Perinatal Loss

Interactions with health providers have the potential for profound effects on patients experiencing perinatal loss projecting into future experiences with subsequent pregnancies. The literature showed mixed experiences with care providers after experiencing a loss with a high number expressing discomfort or dissatisfaction with specific interactions or insensitive behaviors and comments.

Parents reported that lack of communication between staff members about the death as an egregious error, expressing resentment when staff members seemed to be

unaware of their loss or forgotten a baby's death or when providers were perceived as avoiding the family, lacking in emotional support, or made thoughtless comments (Pector, 2004; Säflud, Sjögren, & Wredling, 2004; Sanchez, 2001). A Swedish study (Radestad, et al., 1996) involved data collected via questionnaire from 636 women who had given birth. The focus of the study was to investigate how nurses met the needs of mothers with stillborn infants and the mothers' experiences of support during and after delivery. The women reported that more than 90% of the medical staff demonstrated respect for their desires, and approximately 80% of them exhibited tenderness toward their dead children. Studies addressing the role of other health care team members include Murray and Callan's (1988) description of the therapist's role in helping couples develop coping mechanisms to deal with perinatal loss. Another study outlined the role of social workers who interact with families coping with perinatal loss (Pauw, 1991).

Nurses were generally perceived as the care provider most likely to provide emotional support, receiving the highest satisfaction ratings of all providers (Armstrong, 2001; Gold, 2007; Kavanaugh & Hershberger, 2005). One study (Armstrong, 2001) had favorable comments about their caregivers, most often describing these experiences as being with nurses. A study by Sexton and Stephen (1991) reported 86% of patients stated that discussing their feelings with the nurse was helpful. Unfortunately, these positive reviews were not universal throughout the literature with several studies expressing disappointment about interactions with nursing staff ranging from feeling that nurses not did listen to them to nurses being cold toward them (Trulsson & Radestad, 2004; DiMarco, Menke, & McNamara, 2001; Calhoun, 1994).

In contrast, bereaved parents were most appreciative of actions by staff that demonstrated emotional support and showed attention to the physical needs of the mother and baby. Education on the grief process, direct communication about the baby's status and cause of death, and consistent information from all the team members were viewed as valuable services from their health care providers (Armstrong, 2001; Dimarco, Menke, & McNamara, 2001; Gold, 2007). Lundquist, Nilstun, and Dykes (2002) found that mothers felt a sense of encouragement and support when nurses allowed them time to talk or just sat with her holding her hand. The time the staff provided made them feel their needs and emotions were important and attended to, giving them courage to touch and hold their infant. Säflud, Sjögren, and Wredling (2004) found that specific information given moments before and after the stillbirth is of utmost importance in affecting the perception of parents regarding the role of and support from their caregivers as either devastating or facilitating their mourning process. Advising parents in caring for the stillborn child was found to be influenced by caregivers' flexibility toward the parents' own needs for the stillborn (Säflud, Sjögren, & Wredling, 2004).

While some researchers debate whether interventions make a difference to bereaved parents (Rowa-Dewar, 2002), many have clearly identified the positive influence that healthcare provider support provides (Ujda & Bendiksen, 2000; Saflund, Sjogren & Wredling, 2004; Rajan & Oakley, 1993). Swgenschanson (1999) studied the effect that counseling had on women who experienced perinatal loss and found that regardless if they sought counseling early or at a delayed time, these women had lower anger scores than those who received no counseling. Supporting parents with genuine sensitivity and patience during their last moments with their dead infant is critical to their

bereavement response. The care and understanding shown during the time of the perinatal loss can influence and facilitate the parents' grieving process (DiMarco, Renker, Medas, Bertosa, & Goranitis, 2002; Gold, 2007; Säflund, Sjögren, & Wredling, 2004; Trulsson & Rådestad, 2004; Uren & Wastell, 2002). Similar to other trauma survivors, parents interviewed years and even decades after a child's death reported a surprising level of detail regarding the event, often retelling the story of the loss including comments people made and upsetting aspects of their experience (Gold, 2007; Lundquist¸ Nilstun, & Dykes, 2002) During these high-stress times, seemingly benign mis-steps by a health care provider may be engrained in a bereaved parent's memory and replayed over and over in the years to come (Gold, 2007).

Unfortunately, even health care professionals directly involved with caring for dying infants and children may inadvertently overlook, under-estimate, or misinterpret the needs of bereaved parents (Neidig & Dalgas-Pelish, 1991). The literature on the role of nursing staff during and after perinatal loss remains vague and very clinical in nature because of the primary focus on exploring standards of care, policies, and procedures (Gensch & Midland, 2000). In order to best meet the needs of our patients and their families, it is essential that healthcare professionals understand the impact of perinatal loss on subsequent pregnancies because 80% of women who suffer a perinatal loss will become pregnant again, often within 18 months of the initial loss (DeBackere, Hill, & Kavanaugh, 2008; Cuisinier, Janssen, de Graauw, Bakker, & Hoogduin, 1996).

Patient Perceptions of Caring Behaviors

Most of the research over the past two decades on perinatal bereavement has focused on inadequate parental support following loss and inflexible hospital rules. This

caused unsatisfactory relationships with physicians and nurses which in turn hindered grief resolution for parents resulting in a transformation of many hospital practices (Davies, 2004; Gold, 2007; Kennell, Slyter, & Klaus, 1970; Lasker & Toedter, 2001; Lemmer, Boyd, & Forrest, 1991;).

There is a limited amount of research focused specifically on what bereaved parents perceive as caring behaviors by health professionals, specifically nurses, following the human experience of perinatal loss. Bruce's (1962) study of stillbirth provided one of the earliest descriptions by women of nurses' expressions of sympathy, demonstrations of caring, and presence as caring behaviors. Findings from her research with women experiencing miscarriage, Swanson-Kauffman (1986) concluded that women desired caregivers who recognized the individualized meaning of the pregnancy, who were empathetic, who facilitated their expression of grief, who met their basic needs, and who maintained their hope for successful future pregnancies.

Lemmer, Boyd, and Forrest (1991) explored parents' perceptions of caring behaviors during stillbirth and neonatal death. Two major categories emerged based on the types of needs that were met. *Taking care of* reflected activities by health care providers designed to meet the physiological and safety needs of mother and/or baby and the informational needs of family members. *Caring for or about* focused on care providers' activities that demonstrated to parents sensitivity to and an empathetic awareness of the emotional pain of bereavement and a desire to help them through it. Parents most often perceived nurses and doctors as failing to recognize their unique emotional needs when providers were regarded as being "too busy" or "not able to understand" (Lemmer, Boyd, & Forrest, 1991). Lundquist, Nilstun, and Dykes (2002)

examined mothers' experiences and perceptions of care at neonatal clinics while facing the threat and reality of losing their baby. Two primary findings emerged: mothers felt empowered when health care professionals respected her as a person and mother, empathizing with her emotional distress; mothers felt powerless when she sensed distance, violation, and disconnection with the healthcare professional who she perceived as not engaged in her situation but treated her from their own aspect of care.

Women who have experienced perinatal loss really desire the health care team to understand her emotions by validating and acknowledging the significance of her loss (Armstrong, 2002; Armstrong 2004; Côté-Arsenault & Dombeck, 2001) and not make light of their concerns during the subsequent pregnancy (Côté-Arsenault & Morrison-Beedy, 2001).

Nurses' Perceptions of Caring Behaviors

Although multiple caregivers may come into contact with families experiencing perinatal loss, it is nurses who spend the greatest amount of time providing comprehensive care (Calhoun, 1994). There is a paucity of articles about the actual experiences of perinatal nurses providing bereavement care. Two studies were identified with a focus on nurses and perinatal bereavement care. Rock (2004) completed a correlational study to describe the comfort levels of nurses who care for families experiencing perinatal loss. Feeling prepared and having learned about such care in their academic programs was significantly correlated with increased comfort. A similar study was carried out by Chan, Chan, and Day (2003) that explored nurses' attitudes towards perinatal bereavement support. One hundred ten nurses were recruited from the obstetrics and gynecology units in one of the largest public hospitals in Hong Kong. Quantitative

data were collected through a structured questionnaire, and descriptive statistical analysis was conducted. The results showed that while only 25.5% of nurses had bereavement training, the majority of nurses held a positive attitude towards bereavement care. Findings from both studies emphasized the need for more education on bereavement care for improved communication skills and for greater support from the hospital and team members.

Other articles focused on approaches to help nurses prepare to provide effective bereavement care. Kavanaugh and Paton (2001) looked at health provider communication with bereaved parents, focusing on the problems that result in inadequate communication. Their findings suggested that novice clinicians from all disciplines should be mentored by experts as they develop experience. These experienced experts should guide the communication of other professionals who interact with patients and families and provide ongoing education on death and grief including methods to assist staff with coping methods. DiMarco, Renker, Medas, Bertosa, and Goranitis (2002) studied the effects of an educational intervention on nurses' perceptions about perinatal losses where instruction was content only without skills. McCreight (2003) studied nurses on gynecology wards in Northern Ireland to validate the emotional work that nurses must do and to bring attention to this work through educational programs and agency support systems. In southern Ireland, Begley (2003) studied the responses of student midwives to caring for women with perinatal losses. Three findings resulted from the study: students' feelings of being unprepared and wanting not to cause further distress to the parents, positive physical care and supportive approaches of the experienced midwives, and the intense emotional responses of the students. Begley suggested that structured support

during clinical experiences and more education about bereavement and communication are important to include in midwifery programs.

Wojnar (2006) proposed that the five basic processes of Swanson's Caring Model (maintaining belief, knowing, being with, doing for, and enabling) provides a framework that demonstrates the importance of attending to the wholeness of humans in their everyday lives by ascribing meaning to acts labeled as nurse caring behaviors. Swanson (1991) described caring as "a nurturing way of relating to a valued other toward whom ones feels a personal sense of commitment and responsibility." Swanson proposed that all-inclusive care in a complex environment embraces balance of caring (for self and the ones cared for), attaching (to others and roles), managing responsibilities (assigned by self, others, and society), and avoiding bad outcomes (Swanson, 1990). Swanson's middle range theory of caring supports Florence Nightingale's original concept that caring is the central and underlying domain for the body of knowledge and practice of professional nursing (Leininger, 2006; Watson, 2006).

Theoretical Framework

Review of Relevant Theories

Caring is frequently used to describe what the profession of nursing is all about (Finch, 2008). Since Florence Nightingale, nurse scholars have written about caring as an essential characteristic of nursing and its centrality to the science of nursing (Leninger, 1984; Boykin & Schoenhofer, 2001; Watson, 2006, 2008). Leninger (1984) identified that "care is the essence and the central, unifying, and dominant domain to characterize nursing." Caring is central to most nursing interventions, the moral and ethical basis of nursing, and the essence of nursing (Benner & Wrubel, 1989; Condon, 1988; Watson,

48

2006). Traditionally, nursing is viewed as being concerned with caring as a principle for nursing action (Cronin & Harrison, 1988).

Watson's Theory of Human Caring

Watson's (2006) Theory of Human Caring views caring as a moral ideal, suggesting that both nursing and medicine are moving out of an era in which cure is dominant into one in which care takes precedence. Watson's (2006, 2008) theory of human caring, based on a psychological, philosophical world view, recognized the importance of the nurse-patient relationship as having a foundation rooted in trust, respect, and empathy which is communicated through displays of understanding and acceptance.

According to Watson's (2006) caring-healing model, nurse-client relationships that promote healing are based on mutual trust suggesting that relationships between nurses and clients allow for the formation of a humanistic-altruistic value system, instilling hope, cultivating sensitivity, and developing trust. Five of Watson's (1979) original ten carative factors – instillation of faith-hope, cultivation of sensitivity to one's self and others, development of a helping-trust relationship, promotion and acceptance of the expression of positive and negative feelings, and allowance for existential-phenomenological factors – have the potential to guide nursing care in the situation of perinatal loss (Lemmer, Boyd, & Forrest,1991; Watson, 2006). Jean Watson's (2006) transpersonal caring relationship seeks to connect with and embrace the soul of the other through the processes of caring and healing and being in authentic relationship in the moment. Her viewpoint is that caring is the moral ideal of nursing where there is the utmost concern for human dignity and the preservation of humanity. It is Watson's

position that when a patient feels accepted and understood, (s)he will most likely identify the nurse as a caring person (Watson, 2006; Watson & Foster, 2003).

Swanson's Caring Model

The selected theoretical model for this research was Kristen Swanson's (1991) middle range theory of caring because of her explanation of what it means for nurses to practice in a caring manner, emphasizing that the goal of nursing is to promote well-being (Swanson & Wojnar, 2004). Caring, according to Swanson (2006) is a "nurturing way of relating to a valued 'other' toward whom one feels personal sense of commitment and responsibility." Of critical importance is that Swanson's middle range theory of caring encompassed multiple clinical investigations involving the specific population of interest to this research, women who experienced perinatal loss. Swanson's Caring Model (Swanson, 1991) included five basic processes that provide meaning to nursing acts labeled as caring which form the foundation for her middle range theory of caring. These five processes are maintaining belief knowing, being with, doing for, and enabling (Swanson, 1991; Swanson, 2006).

Maintaining belief. This means sustaining faith in the other's capacity to get through an event or transition and face a future with meaning. It involves believing in others and holding them in high esteem, maintaining a positive attitude, offering realistic optimism, helping the other to find meaning, and standing by the other no matter how their situation unfolds. This is created from the nurse's own philosophical attitude towards her patient.

Knowing. This means striving to understand an event as it has meaning in the life of the other. This involves avoiding assumptions, focusing on the other's reality,

assessing thoroughly, seeking cues, and engaging the self of both the caregiver and the one cared for.

Being with. This means being emotionally and physically present to the other, conveying ongoing availability, sharing feelings, and not burdening the one cared for with the caregivers' responses to his or her plight.

Doing for. This means doing for others what they would do for themselves if it were at all possible including anticipating needs, comforting, performing skillfully and competently, protecting, and preserving the other's dignity.

Enabling. This means facilitating the other's passage through life transitions and unfamiliar events. Interventions include focusing on the other, informing, explaining, supporting, validating, generating alternatives, thinking things through, and providing constructive feedback.

Although Swanson credited Watson's influence on her research on caring, neither nurse researcher conceded that Swanson's program of research was an application of Watson's theory. Swanson asserted that Watson's research established a research tradition for future scientists interested in the nature of caring by demonstrating that caring 1) is a central concept in nursing, 2) values multiple methodologies for inquiry, and 3) honors the important role of nurses studying caring in order to better understand it so that behaviors and interventions are intentionally acted upon to promote, maintain, and restore health and healing (Swanson, 2006). Both Swanson and Watson asserted the compatibility of their individual theoretical assertions from their independent bodies of research in both contributing to the science of caring (Wojnar, 2006).

Predictor Variable - Nurse Caring Behaviors

Outcome Variables

Death of Baby & Subsequent Pregnancy

Maintaining Belief

Knowing

Being With

Doing For

Enabling

Patient Well - Being

♥ Pregnancy-Specific Anxiety
♥ Maternal-Fetal Attachment

1   2   3   4   5

Demographic IVs:
- **Number of pregnancies**
- **Number of living children**
- **Age at time of previous loss**
- **Gestational age at time of previous loss**
- **Length of time since previous loss**

Figure 1. Theoretical Study Model.

Theoretical Rationale for Model

Swanson's (1991, 2006) theoretical model holds that nurse caring recognizes that optimal healing includes attention to health which is not just the illness recovery, adaptation transition, or restoration of function. Attending to the whole person in sustaining meaning and purpose in their life is equally important (Swanson, 1991; Swanson 2006). Examining human experiences of pregnancy after perinatal loss from a feminist perspective, it is critical to explore how our actions and language construct what represents relevant care knowledge, who owns and has the right to act on such knowledge, and who has the right to determine what constitutes care effectiveness or indicators of healing (Swanson & Wojnar, 2004).

Wojnar (2006) proposed that the five basic processes of Swanson's Caring Model (maintaining belief, knowing, being with, doing for, and enabling) provides a framework that demonstrates the importance of attending to the wholeness of humans in their everyday lives by ascribing meaning to acts labeled as nurse caring behaviors. Swanson's research examined the effectiveness of caring-based interventions in promoting healing for women and their partners who have experienced pregnancy loss through miscarriage. Healing, in this context, means restoring mental health, resolving grief, finding meaning, and sustaining the couple relationship ((Swanson, 1999; Swanson, Karmali, Powell, & Pulvermahker, 2003).

Swanson proposed that all-inclusive care in a complex environment embraces balance of caring (for self and the ones cared for), attaching (to others and roles), managing responsibilities (assigned by self, others, and society), and avoiding bad outcomes (Swanson, 1990). Nursing care that embraces a caring-healing framework

incorporates meeting client's needs by creating a comfortable environment that is conducive to healing, allowing the nurse to go beyond the physical surface and enabling access to the core of the client's humanness (Swanson & Wojnar, 2004; Watson, 2006).

Summary and Conclusions of Literature

Perinatal loss is a life-altering event that forever changes a woman's perspective on pregnancy and reality resulting in feelings of vulnerability, worry, fear, and uncertainty about the outcome of subsequent pregnancies. (Côté-Arsenault & Mahlangu, 1999; Côté-Arsenault & Marshall, 2000; Côté-Arsenault & Morrison-Beedy, 2001). The literature showed limited attention to parents' experience during a subsequent pregnancy addressing their concerns about the outcome of the pregnancy in alleviating anxiety and emotional distress. The anxiety that occurs in a subsequent pregnancy and any concerns about the developing relationship between the parents and their unborn child need more investigation.

Studies which included data collected from dyad sources must examine potential issues with non-independence of observations and consider strategies to reduce biases resulting from interdependence of couples' data. Other factors unrelated to previous perinatal loss, such as depression or lack of supportive relationships, could impact the development of both pregnancy specific anxiety and maternal fetal attachment (Condon & Corkindale, 1997; Cranley, 1981; Mercer, et. al, 1988; Phipps & Zimm, 1986).

Findings in the literature conflicted whether there was a significant change in attachment among women with a previous history of perinatal loss (Armstrong ,2002; Armstrong & Hutti, 1998). Limitations of the previous studies may be due to methodological problems including inadequate operational definitions of the construct;

small, homogenous samples; lack of appropriate comparison groups, retrospective nature of the majority of the studies, inconsistent use of standardized , reliable measurement tools, and lack of sensitivity to cultural issues.

The influence of perinatal loss on the outcome of subsequent pregnancies should be of concern to health care professionals who work with families who struggle with this loss experience. There has been limited to absent effort to organize, integrate, and synthesize study findings on MFA into a rational and coherent pattern of disciplinary knowledge to provide guidance and information to advance nursing theory, interventions, patient care, and public policy within the area of maternal child health (Yarcheski, Mahon, Yarcheski, Hanks, & Cannella, 2009). How the effect of these past events impact the developing relationship between the mother and her unborn child continues to remain unclear.

The trauma of perinatal loss can have long-term effects on the family including the psychological health of the mother and her next-born child (Hughes, Turton, Hopper, & Evans, 2002). Nurses are in a unique position of being able to improve the long-term well-being of the woman and her family following perinatal loss, by first strengthening her power to cope with the loss of her baby and second, by not causing her additional psychological trauma (Trulsson & Radestad, 2004) through incorporation of caring behaviors in all interactions. Linkages between nurse caring behaviors as predictive interventions affecting pregnancy specific anxiety and maternal fetal attachment in pregnancy subsequent to loss have not been explored extensively in the literature. This study sought to address the gaps identified in literature by determining if nurse caring behaviors were predictive in affecting: 1) pregnancy specific anxiety and 2) maternal-

fetal attachment in pregnant women who have experienced a previous perinatal loss.

Finding answers to such questions may inform the need for human or financial resources

to influence the design of nursing education within the academic and clinical settings in

addition to practice interventions to improve patient care outcomes for this vulnerable

population.

CHAPTER 3

RESEARCH METHODS

Study Purpose and Chapter Overview

The purpose of this study was to learn whether nurse caring behaviors (NCB) – from the perinatal loss event through the current pregnancy – affect pregnancy-specific anxiety (PSA) and maternal-fetal attachment (MFA) in women who are pregnant following a perinatal loss. This chapter describes the research design and analytic plan. Research aims that were aligned with research questions are provided along with a sampling plan, measures that were used, data collection, and statistical tests

Research Design

A correlational, non-experimental, descriptive study design was used to achieve the purpose of this study. To meet the aims of this research, five questionnaires were used with a non-probability, non-randomized, convenience sample.

Research Assumptions

1. A patient's perception of nurse caring behaviors was determined by the patient.

2. Women in a subsequent pregnancy could recall care affected by nurse caring behaviors during and following perinatal loss.

3. Women who are pregnant following previous perinatal loss may have had mixed emotions about their current pregnancy and/or towards the fetus.

4. Women who are pregnant following previous perinatal loss want frequent contact with their healthcare provider to be assured about the state of their current pregnancy.

Research Aims and Related Research Questions

Research Aim One

Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict pregnancy-specific anxiety (PSA) in women who are pregnant following their loss.

Research Question One

What effect do nurse caring behaviors (NCB) at the time of perinatal loss have on pregnancy-specific anxiety (PSA) in women who are pregnant following their perinatal loss while controlling for maternal demographic variables and generalized anxiety?

Research Aim Two

Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict maternal-fetal attachment (MFA) in women who are pregnant following their loss.

Research Question Two

What effect do nurse caring behaviors (NCB) at the time of perinatal loss have on maternal-fetal attachment (MFA) in women who are pregnant following their perinatal loss while controlling for maternal demographic variables?

This information was expected to provide knowledge to guide recommendations for improving patient care through staff education in developing individualized and meaningful interventions for patients and their families, which may better meet their needs.

Study Population and Sample

All potential participants were women who were > 16 weeks pregnant with a history of a previous perinatal loss.

Inclusion Criteria

- 18+ years old

- History of previous pregnancy that resulted in perinatal loss

- Gestational age estimated > 16 weeks

- Able to read and understand English

Exclusion Criteria

- Pregnancy was part of a surrogate agreement

- Non-English speaking

Recruitment

Following Institutional Review Board (IRB) approval on December 11, 2013 for this study (Appendix A), participant recruitment began at outpatient obstetrician (OB) offices, a fetal diagnostic center, and perinatal bereavement support group(s) at a tertiary perinatal center (See Figure 2, Subject Recruitment Flow), which serves the Long Beach area. The researcher provided an education session at the obstetric physicians' department meeting and at recruitment site staff meetings (providing study information, explaining the participant recruitment process, and requesting endorsement for the research study).

Recruitment information fliers (Appendix B) that described the study purpose and researcher contact information were provided to staff at the recruitment sites to distribute to interested potential participants. Additionally, a recruitment information flier for self-

referrals (Appendix C) was posted with a secured study dropbox at check-in areas of the OB office(s), the fetal diagnostic center, and perinatal bereavement support group(s) describing the study purpose with researcher contact information. An information posting (Appendix D) was placed on the website for women's services and the perinatal bereavement program.

Under a MemorialCare Health System (MHS) Waiver of Authorization (Appendix E), a screening/enrollment log (Appendix F) of potential participants is generated by the research team members via chart review; referrals from OB office staff; and self-referrals from bereavement group. At the regularly scheduled OB office and/or fetal diagnostic center appointment, staff offered the study information flier to the potential study participant, asked whether she was interested in participating in the study and agreed to be contacted by a member of the research team to receive additional information about the study. This was noted on the site screening/enrollment log. The researcher or research assistant (RA) checked in daily at each recruitment site for potential subjects and updated the master screening/enrollment log. This avoided repeatedly asking the same subject to participate in the study. The researcher or RA contacted the subjects and made enrollment appointments.

Subject Recruitment Flow

3 Key Locations

Eligibility Screening

Inclusion Criteria
- >18 years or older
- 4 months pregnant
- Previous loss during pregnancy
- Willing to complete 5 questionnaires that will take about 30 - 45 minutes at a location of your choice

OBSTETRICAN OFFICE
1. Study Recruitment Flyer available in office lobby. Patient can self-contact investigator.
2. MD/Office Manger Screening of current potential patients. Patient list generated.
3. Patient comes in for regular appointment; study information shared by Staff. Patient asked if researcher may contact them. (yes/no)
4. Patient agrees for follow-up apt with researcher for informed consent and completion of study

FETAL DIAGNOSTC CENTER
1. Study Recruitment Flyer available in Lobby. Patient can self-contact investigator.
2. PI/or research staff can introduce themselves to potential subjects and provide study information.
3. Team can meet patients in diagnostic center for screening and enrollment for those who agreed to be contacted from OB/GYN Offices
4. Patient agrees for follow-up apt with researcher for informed consent and completion of study

PERINATAL BEREAVEMENT SUPPORT GROUP(S)
1. Study Recruitment Flyer available in Lobby. Patient can self-contact investigator.
2. Group facilitator will introduce study and announce that flyer is available. She will also ask group if investigator can speak to group at next meeting.
3. PI can provide overview of study to group; and those that wish more information and want to participate can stay after group to meet with PI. Screening and eligibility will be done.
4. Informed consent and completion of study questionnaires on-line/paper version if appropriate.

Study Questionnaires
1. Caring Behaviors Inventory (CBI-24)
2. Anxiety sub-scale (IPIP Neuroticism)
3. Pregnancy Anxiety Scale (PAS)
4. Maternal antenatal attachment scale (MAAS)
5. Demographic questionnaire and two (2) optional open ended questions

Primary Outcome Assessments
1. Determine if nurse caring behaviors (NCB) at the time of perinatal loss are predictive of pregnancy-specific anxiety (PSA) in women who are pregnant following this loss.
2. Determine if nurse caring behaviors (NCB) at the time of perinatal loss are predictive of maternal-fetal attachment (MFA) in women who are pregnant following this loss.

Figure 2. Subject Recruitment Flow.

Sample Size

The non-probability, convenience sample was comprised of 33 women meeting inclusion/exclusion criteria. The appropriate sample size was determined using the convention of five to ten subjects per independent variable (IV) (in a regression model). There were two main analyses (ordinary least squares regression; dependent variables were pregnancy-specific anxiety and maternal-fetal attachment) on which this calculation was based. In both, there were seven independent variables, one primary and six

secondary, which determined the total number of IVs for the target sample size of 35 -

70. In spite of active recruitment efforts, ten months of open enrollment averaged three

participants per month. At this enrollment rate, an additional 11 months would have been

necessary to reach the target sample size of 70. However, because study participation was

voluntary, there was no assurance that additional participants would be enrolled.

Additionally, given the academic timeline constraints, it was determined that it was not

reasonable to continue enrollment, so the study recruitment was closed with a sample size

of 33.

The primary independent variable was nurse caring behaviors (NCB). The

secondary independent variables, comprised of several maternal demographic variables

(MDV) and generalized anxiety (GA), were considered control variables. The five MDVs

of interest included the number of pregnancies, number of living children, age at time of

previous loss, gestational age at time of previous loss, and length of time between

previous loss and current pregnancy. The MDVs of ethnicity, income, and marital/partner

status were used only to describe the sample population and not tested in the regression

analysis. The literature has shown that ethnicity, education level, and socioeconomic

status are not strong predictors of emotional distress following reproductive loss.

Moreover, some data were missing for these demographic variables, which would have

required either imputation or a loss of study participants in the regressions.

Ethical Considerations and Protection of Human Subjects

This study does not involve a drug or treatment clinical trial. Signed approval for

this project was obtained from the respective institutional review boards of the

participating health system clinical site and university prior to commencing the study.

The privacy and confidentially of information was maintained with all data stored on a

MHS secure and encrypted server. Instruments used to collect data did not solicit

identifiable patient health information (PHI). Demographic information obtained

included the following: number of pregnancies, number of living children, age at time of

previous loss, gestational age at time of previous loss, and length of time between

previous loss and current pregnancy, ethnicity, income, and marital/partner status. All

collected data were aggregated (i.e., no individual details).

Informed consent was obtained by the researcher or RA either in paper format

(Appendix G) or electronically via a web survey (Appendix H) depending on

participant's survey choice. Participants completed five questionnaires and two optional,

open-ended questions using their choice of paper or electronic survey. The on-line survey

was accessed via SurveyMonkey, which is a commercial software company that uses

advanced technology for Internet security. The company displays recognized on-line trust

seals, including Norton (formerly VeriSign), TRUSTe, and McAfee, to keep data private,

safe, and secure. Systems are specifically designed to meet and exceed industry standards

for Internet security as well as IRB standards to help protect research participants. The

servers as well as the database and web presence, employ numerous forms of enterprise

level security features to reach those goals. This includes a firewall that restricts access to

all ports except 80 (http) and 443 (https). Additionally, an intrusion detection system and

other systems detect and prevent tracing of the IP address and interference or access from

outside intruders to stored data. However, total privacy cannot be guaranteed; thus, there

is a remote possibility that an unauthorized person might be able to see personal

information. There were no indications that that had occurred.

The SurveyMonkey version used for the study employs encryption protocols to reduce the risk to subjects that their responses are viewed by unauthorized persons. Survey data were stored as aggregate, not individual data. The information provided from participants was stored on a secure computer network with encryption and password protection only accessible by the principal investigator (PI) and research team. All data were backed up nightly on this secure network. All future publications and/or presentations that result from this study will be reported as aggregate data and will not include any information on individuals.

Participants who chose to complete the electronic survey questionnaire clicked onto the survey questionnaire link on the secure hospital Intranet. Identifiable information was indirectly linked to a study number. After clicking on the link, participants reviewed the introductory letter in the on-line SurveyMonkey questionnaire and provided informed consent by selecting the "accept" button, stating agreement to participate and granting permission to the PI to access study information. To minimize a breach of confidentiality, no personal identifiers were attached to any study documents. All surveys were coded using a study number not associated with the participant and stored on a secure and encrypted server. All data collected were reported as an aggregate and not individually. The time for questionnaire, completion was approximately 30 - 45 minutes. The PI's contact information was listed for any participant questions.

Due to the sensitive nature of the survey questions, which could have invoked emotional distress and sadness in the participants as they recalled and discussed events, referral services were made available to the perinatal chaplain, perinatal social worker, or maternal anxiety and mood disorder center in Long Beach, whichever was most

convenient for the participants. See Appendix I for letters of commitment to provide this service. At the completion of the study, no women had sought such counseling.

<div align="center">**Research Procedures**</div>

Following receipt of IRB approval, information was provided by the PI regarding the purpose of the study, recruitment, and procedures to the obstetricians and staff at recruitment sites. Department management and staff education was provided by the PI to identified key contact personnel at recruitment sites. Training included study eligibility, distribution of study brochures to potential participants, a secure study dropbox for check-in areas, and the referral process to the research team. The recruitment information flier included a tear-off contact section that women completed to indicate their participation interest to be contacted by the PI or RA. The completed form was placed by the individual in the secure designated study dropbox at each recruitment site check-in area and picked up daily by the research team who updated the master screening/enrollment log and made enrollment appointments.

The members of the research team on this study included the PI, a maternal fetal medicine (MFM) physician, the nurse researcher from the participating health system, the perinatal clinical nurse specialist (CNS) from the participating health system, and three RAs. The role of the MFM physician was as medical consultant in facilitating obstetrician endorsement to support patient participation at the outpatient clinic and physician office recruitment sites. The role of the nurse researcher was as the regulatory contact and liaison to the participating health system IRB to sponsor this study through the required review and approval processes. The role of the perinatal CNS was as a content expert and liaison to the inpatient obstetrical department including the fetal

diagnostic center recruitment site. The three RAs' primary role was to assist with study

participant enrollment at the various recruitment sites. They were selected as RAs for this

study because of their experience and interest in this research topic. The first RA is the

chaplain group facilitator of the perinatal bereavement and support groups at the

participating health system. She is the primary referral resource for physicians and the

labor and delivery department for all women experiencing loss. The second RA is a

neonatal intensive care unit (NICU) nurse with a specific interest in perinatal palliative

care who just completed her nurse practitioner degree with the maternal fetal medicine

division of the obstetrician group. The third RA is an administrative analyst in the

perinatal outreach program with a master's degree in public health and previous RA

experience.

The study PI trained the entire study team on the purpose of the study,

recruitment, and procedures at recruitment sites. Training included study eligibility, study

instruments, recruitment information flier, the referral process to the research team, and

the enrollment appointment follow up with the study participants. Input was solicited

from the team to improve processes. The study PI provided additional training with the

three RAs on a one-on-one basis to demonstrate study instrument completion in both

paper and electronic format. Each RA was trained on the study protocol by

accompanying the PI to recruitment sites and was introduced to staff and key contacts

and demonstrated the process of updating the screening/enrollment log for potential study

participants. Each RA observed the PI making telephone contact and enrollment

appointment using the recruitment telephone script (Appendix J). The PI rehearsed with

and observed each RA's initial telephone contact and enrollment appointment including

the informed consent process. Weekly team meetings with PI and RAs were conducted to discuss enrollment status and issues.

Under a MHS Waiver of Authorization, staff at the recruitment sites used the screening/enrollment log of potential participants generated by the research team members via chart review, referrals from OB office staff, and self-referrals from bereavement groups.

At the next regularly-scheduled OB MD and/or fetal diagnostic center appointment, staff offered the study information flier to the potential study participant, asked if she was interested in participating in the study, and if she agreed, to be contacted by the research team to receive additional information about the study. This was noted on the screening/enrollment log. The PI or RA checked in daily with identified key staff at each recruitment site to update log.

Potential study participants identified from the study screening/enrollment log were contacted by the researcher and provided additional information about the study using the recruitment telephone script (Appendix J). When the women were contacted by the PI or RA by telephone, they were informed, "I am on the nursing research study team from Miller Children's Hospital Long Beach. I am interested in talking with you about your experiences with nurses during this pregnancy and during your pregnancy when you experienced the loss of your baby. This study is about how nursing care might affect women's anxiety when they become pregnant after a losing a baby and mother-baby bonding during the current pregnancy. In this study, I will ask you to complete five questionnaires in paper or electronic form that will take about 30 – 45 minutes to complete. I am happy to meet at your next doctor's appointment or at any location of

your choice that is most convenient for you. Would you be interested in participating in this study?"

If the woman stated she was interested, an appointment was scheduled at her next earliest convenience. At the scheduled appointment, the PI or RA described the research study, answered any additional questions and obtained informed consent. The subject's signature was obtained via paper or electronic method based on subject's verbalized survey format preference. A unique study number was assigned. Data for this research study was collected until a minimum sample size of 33 was attained.

Instruments and Measures

Table 1

Summary of research aims, concepts, measures and analyses.

AIM	CONCEPTS	INSTRUMENTS	ANALYSIS
1. Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict pregnancy-specific anxiety (PSA) in women who are pregnant following a previous perinatal loss while controlling for maternal demographic variables and generalized anxiety	• Nurse caring behaviors • Generalized anxiety state • Pregnancy specific anxiety in current pregnancy	• Caring Behaviors Inventory (CBI-24) (Wu, Larrabee, & Putman, 2006). • Anxiety sub-scale (IPIP Neuroticism) (1999) • Pregnancy Anxiety Scale (PAS) (Cote-Arsenault, 2003)	• Descriptive statistics • Correlation analysis • Regression analysis
2. Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict maternal-fetal attachment (MFA) in women who are pregnant following perinatal loss while controlling for maternal demographic variables	• Nurse caring behaviors • Antenatal maternal fetal attachment during pregnancy	• Caring Behaviors Inventory (CBI-24) (Wu, Larrabee, & Putman, 2006). • Maternal antenatal attachment scale (MAAS) (Condon, 1998)	• Descriptive statistics • Correlation analysis • Regression analysis

<center>**Independent Variables**</center>

<center>***Nurse Caring Behaviors (NCB)***</center>

The primary independent or predictor variable for this study was the nurse caring behaviors identified by the patient during her hospitalization experience for her previous perinatal loss. Patient-perceived nurse caring is a major predictor to overall satisfaction with hospital care (Larrabee, Ostrow, Withrow, Janney, Hobbs, & Burant, 2004). Effectively measuring nurse caring is critical for monitoring the quality of caring and evaluating the effectiveness of nursing.

Caring Behaviors Inventory - 24(CBI-24)

The independent variable, nurse caring behaviors, was measured using the *Caring Behaviors Inventory* (CBI) originally developed by Wolf in 1981. The conceptual-theoretical basis was derived from the caring literature and Watson's transpersonal caring theory (Wolf, 2009). The CBI was selected because of its value in determining perceptions of caring among both patients and nurses. It was designed and validated for administration to both patient and nurse populations. It is noted for its use of consistent language, easy-to-understand instructions, short length of time to complete (12 minutes), and ease of use in correlational design studies. Permission and instructions from the original author to use the CBI was granted (See Appendix K).

Development and Versions of CBI

There are five versions of the CBI (see Table 2). For this research study, the CBI-24 (Wu, Larrabee, & Putnam, 2006) was used because it appears equivalent to the 42-item CBI in psychometric properties, validity, reliability, and scoring for caring behaviors

among patients and nurses to provide strong data while reducing the response burden for

study participants and costs for the researcher.

Table 2

Versions of *caring behaviors inventory (CBI).*

Instrument	CBI (1981, 1983, 1986)	CBI-43 Revised (1986, 1994)	CBI-42 (1998)	CBI-Elders (2006)	CBI-24 (2006)
Developed to measure	Words and phrases in nursing literature that represents caring (attitude and actions)	Process of caring	Retesting	Perception of nurse caring	Reduction from 42 items to 24 items
Number of items	43 items derived from 75 original words and phrases	42 items based on words and phrases	42 items	28 items	24 items
Likert scaling	4-point Likert	4-point Likert	6-point Likert	3-point Likert	6-point Likert
Number of subscales and description		5 subscales: respectful deference to the other; assurance of human presence; positive connectedness; professional knowledge and skill; attentiveness to the other's experience		5 dimensions: Attending to individual needs; showing respect,; practicing knowledgeably and skillfully; respecting autonomy; supporting religious/spiritual beliefs	4 dimensions: Assurance, Knowledge and skill, Respectfulness and Connectedness
Participants	$n = 108$ nurses $n = 43$ patients	$n = 278$ nurses $n = 263$ patients	$n = 335$ patients	$n = 215$ elders $n = 138$ nursing staff caregivers	$n = 42$ nurses $n = 64$ patients
Reported Validity/Reliability	Content validity from literature sources	Test-retest reliability .96; content and construct validity determined by expert panel; factor analysis 5 factors an 42 items	Overall Cronbach's alpha .98	Overall Cronbach's alpha .96; elders .94; caregivers .82	Cronbach's alpha for 24 items .98; patients .95; nurses .96. Test-retest reliability $r = .88$ patients; $r = .82$ nurses; 4-factor solution; Convergent validity

Study Selection of CBI-24

The CBI-24 (Wu, Larrabee, & Putnam, 2006) consists of 24 items with four subscales from the 42-item, five subscale version (Wolf, Giardino, Osborne, & Ambrose, 1994. Factor analysis based on patient data resulted in a compression of the five dimensions assessed in the 42-item CBI into four major dimensions in the 24-item CBI with psychometric properties and reliability remaining equivalent. Cronbach's α for the overall CBI-24 index is .96 compared to CBI-42 at .98. Convergent validity for CBI-24 is $r = .62$ compared to CBI-42, $r = .63$. The CBI-24 measures four dimensions of caring: (1) Assurance, (2) Knowledge and skill, (3) Respectfulness, and (4) Connectedness. The CBI-24 appears to be equivalent to the CBI-42 in psychometric properties, validity, reliability, and scoring for caring behaviors among patients and nurses resulting in the recommended use of CBI-24 to reduce the response burden and research costs (Wu, Larrabee, & Putnam, 2006).

Subscales for CBI-24

The Likert scale for each item is a six-point range response (1 = never; 2= almost never; 3 = occasionally; 4 = usually; 5 = almost always; 6 = always). Although data from the CBI-24 have this multidimensional structure, a total score (sum of all items) was used to represent a continuous measure of nurse caring behavior.

Assurance subscale. Measures availability to patients' needs and security with CBI-24 = α .92 and CBI-42 = α .95. This subscale includes these eight questions 16, 17, 18, 20, 21, 22, 23, and 24.

Knowledge and skill subscale. Demonstrates conscience and competence with CBI-24 = α .87 and CBI-42 = α .87. This subscale includes these five questions 9, 10, 11, 12, 15.

Respectful subscale. Attends to the dignity of the person, showed CBI-24 = α .91 and CBI-42 = α .90. This subscale includes these six questions 1, 3, 5, 6, 13, 19.

Connectedness subscale. Assesses constant assistance to patients with readiness at CBI-24 = α .82 and CBI-42 = α .90. This subscale includes these five questions 2, 4, 7, 8, 14.

Although the CBI-24 has not been tested specifically to the population of interest in the present study, Wolf and colleagues' (2006) work on caring for elderly (CBI-E) holds a consistent view with Watson and Swanson that caring takes place in moments. To establish theoretical consistency and construct validity the CBI-E items are compared side-by-side against Watson's (1979) carative factors and Swanson's (1991) caring processes (Wolf, 2009). The caring process incorporates a moral commitment to the care recipient and acknowledges the vulnerability that nurses, other caregivers, and patients share as humans (Watson, 2009).

Maternal Demographic Variables (MDV)

In this study, maternal demographic variables (MDV) were considered secondary predictor variables and were controlled when determining the relationship between Nurse Caring Behaviors (NCB) with Pregnancy Specific Anxiety (PSA) and Maternal Fetal Attachment (MFA). The MDVs of interest included the number of pregnancies, number of living children, age at time of previous loss, gestational age at time of previous loss, and length of time between previous loss and current pregnancy. The MDVs of ethnicity,

education, income, and marital/partner status were used only to describe the sample population. MDVs were collected in one of the five surveys provided to study participants to complete and were made available in either paper or electronic format (Appendix L).

Generalized Anxiety (GA) Anxiety

Subscale of the Neuroticism Scale

In this study, generalized anxiety described the study sample and was considered a secondary predictor variable. GA was controlled when determining the relationship between Nurse Caring Behaviors (NCB) with Pregnancy Specific Anxiety (PSA) and was addressed using the 10-item anxiety subscale (α = .83) within the neuroticism scale of the Mini IPIP (International Personality Item Pool; Goldberg, 1999) and is attached in Appendix M. Responses to the first five questions were scored as follows: "Very Inaccurate" assigned a value of 1, "Moderately Inaccurate" a value of 2, "Neither Inaccurate nor Accurate" a 3, "Moderately Accurate" a 4, and "Very Accurate" a 5. Responses to questions six through ten were reverse scored as follows: "Very Inaccurate" assigned a value of 5, "Moderately Inaccurate" a 4, "Neither Inaccurate nor Accurate" a 3, "Moderately Accurate" a 2, and "Very Accurate" a 1. Once numbers were assigned for all of the items in the scale, a sum of all the values obtained a total scale score.

The Mini-IPIP personality scale was developed as a short form of the 50-item IPIP-FFM (Goldberg, 1999) with the rationale to provide a measure that could be used in time critical assessment situations. Donnellan et al. (2006) evaluated the Mini-IPIP across a series of studies, showing it had acceptable reliability (α = .91) and showed similar patterns of relationships with the longer IPIP-FFM when correlating the measure with

facets of the FFM and other relevant personality measures demonstrating its usefulness as a measure when time is limited and a short assessment is required.

Within the psychology literature, the IPIP has been used to provide a number of measures of the five-factor model (FFM) personality traits, namely extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience. The IPIP is available free of charge for measuring constructs of interest in personality and individual differences research, serving as proxies of more widely known commercial and previously published personality inventories.

The nursing literature frequently referenced Spielberger's (1983) State-Trait Anxiety Inventory (STAI), a well-known 40-item questionnaire used extensively to measure general anxiety. It is a 4-point Likert scale with a Cronbach alpha of internal consistency ranging from .83 to .92. Construct validity with contrasting groups and between state and trait anxiety scales has been demonstrated (Spielberger, 1983). In the present study, generalized anxiety was a supporting concept that described the population of interest. Use of a 40-item questionnaire that requires 30 minutes or longer to complete to control for the potential effect of generalized anxiety was not reasonable given the high risk of participant survey fatigue.

Dependent Variables

Pregnancy Specific Anxiety (PSA)

Pregnancy Anxiety Scale

Cote-Arsenault's (2003) *Pregnancy Anxiety Scale* (PAS) was selected to measure the construct of pregnancy-specific anxiety. The PAS was selected as the measurement instrument for this research because of its specificity in quantifying a woman's anxiety

level during her current pregnancy or in reference to a specific pregnancy. The PAS was chosen because of its use in research studies with the population of interest, women who are pregnant subsequent to a previous perinatal loss. Written permission and instructions for use of this instrument were obtained from the original author, see Appendix N.

The PAS is a 9-item scale designed to be used with a 10 centimeter line as a visual analog scale. The anchors are "Definitely No" on the left and "Definitely Yes" on the right. Visual analog scale data is determined by two raters independently measuring in millimeters the point at which the slash or "X" crosses the line using the same ruler. Possible scores can range from 0 – 100 on each item. Higher scores indicate higher pregnancy anxiety. The mean of the responses to the entire instrument is computed by taking the total score and dividing it by 9. Items 3 and 9 must be reverse coded.

The PAS (Cote-Arsenault, 2003) includes validity evidence of both content (panel of experts and face) and construct (discriminant, known-groups, and predictive) domains with several samples of pregnant women or women reflecting back on their index pregnancies. Cronbach's α range from of .83 to .89, which represents good internal consistency with parallel forms of reliability previously estimated. The Flesch-Kincaid grade level of the PAS is 7.1, and the Flesch reading ease is 63.8.

In developing the PAS, Cote-Arsenault used two items with permission from the Pregnancy Outcome Questionnaire (Theut, Pedersen, Zaslow, & Rabiniovich, 1988), an instrument intended to measure pregnancy-related anxiety. Cote-Arsenault did not use the entire POQ because it appeared to tap additional constructs such as parenting anxiety and was never subjected to factor analysis to support its construct validity. Four items of the PAS were developed to tap Rubin's (1984) first two tasks of pregnancy, safe passage, and

social acceptance with two items for each. These first two tasks of pregnancy were selected because according to Rubin (1984), if they are not undertaken successfully, then the final two tasks of pregnancy will not progress.

Factor analysis with varimax rotation revealed two factors on the PAS, pregnancy concerns and concerns for the baby, as indicative of construct validity. Additional evidence of construct validity was obtained through known groups, discriminant, and convergent validity analyses. The five remaining items were found to have a Cronbach's alpha of .70, indicating adequate internal consistency for a new scale. A panel of experts in pregnancy (two clinical nurse specialists in maternal-child nursing and one women's health nurse practitioner) reviewed the six PAS items prior to use with items reworded based on the panel's suggestions. A visual analogue format was used with anchor points of "Definitely Yes" and "Definitely No." The PAS was pilot-tested with 10 women, 5 with a history of perinatal loss and 5 without, for readability and appropriateness. A total score – the sum of all items – was used in the present study.

Maternal Fetal Attachment (MFA)

Maternal Antenatal Attachment Scale (MAAS)

Condon's (1998) *Maternal Antenatal Attachment Scale* (MAAS) was selected as the instrument to measure maternal-fetal attachment during pregnancy subsequent to perinatal loss. This scale was chosen because it goes beyond measuring just the level of prenatal attachment to measuring both the quality of the prenatal attachment and the quantity of time spent in the attachment mode. Unlike other instruments used to measure maternal/fetal attachment, the MAAS specifically addresses the maternal/fetal

relationship in terms of feelings, attitudes, and behaviors toward the fetus rather than the pregnancy state or motherhood role.

The MAAS was developed through unstructured interviews with 15 expectant couples. Attachment experiences and behaviors were identified and examined to yield a 36-item pool, which was evenly distributed over the five dispositions (to know, to interact with, to avoid separation, to protect, and to gratify needs). A pilot study was conducted with 54 expectant couples to test the instrument. Although no systematic item analysis was conducted, several items were re-worded or deleted to avoid the ambiguous term "the pregnancy' as some subjects interpreted it as referring to the fetus whereas others believed it referred to the pregnancy state. This resulted in a final 27-item questionnaire (Condon, 1985).

A later study (Condon, 1993) with 112 pregnant women refined and tested the MAAS producing a 19-item questionnaire (Cronbach alpha > .82). Condon designed his scale to measure dispositions of prenatal attachment (closeness/distance, positive/negative feelings, joyful/unpleasant feelings, real person/living object (thing), and/or tenderness/irritation).

The 19-item self-report questionnaire measures the mother's subjective experiences of feelings, behaviors, and attitudes towards her fetus during pregnancy along a number of dimensions relating to parent-infant attachment. Items are scored on a 5-point Likert scale ranging from 1 to 5; 1 representing the absence of the concept of maternal attachment to the fetus and 5 representing maternal feeling of attachment that is either very positive or very strong. The minimum potential score for the MAAS global is 19 and the maximum 95. Item 7 did not load on either factor strongly enough for

inclusion within the four dimensions. It is usually included in the global attachment score, and its score should be reversed. As in most studies, a total score was used.

Factor analysis revealed two factors that explained 39% of the variance: (1) quality of maternal feelings and interaction with her unborn child (11 items) and (2) intensity of maternal preoccupation with the fetus and amount of time that the expectant mother spends thinking about, talking to, or dreaming about the fetus (8 items). Reliability for the MAAS, assessed by internal consistency, showed Cronbach's coefficient alpha for the total scale to be .82.

MAAS Dimensions

Condon (1993) asserted that at the core of prenatal attachment is love that is manifested in subjective behaviors or dimensions, which include the disposition to know, to be with and interact with, to protect, to avoid separation from or loss of, and to gratify the needs of the fetus. These dimensions function as "indicators" of attachment and are postulated to mediate between the core attachment experience (love) and the diversity of overt attachment behaviors of: (a) seeking information and proximity, (b) pleasing, (c) protecting/safeguarding, and (d) altruistically gratifying the needs of the fetus (Condon, 1993). If attachment is strong, such interaction is more likely to be experienced positively. With strong attachment, resentment is less likely and the responsibilities of infant care are less likely to be experienced as burdensome. Strong attachment is accompanied by a strong curiosity about "what goes on" inside the infant (Condon, 1993).

Pleasure in proximity dimension. Reflects the desire for proximity and enjoyment of the interaction with the infant and is comprised of items 3, 8, 9, 14, 15, 16, 17.

Included items are desire to prolong time spent with the baby, sadness at separation, joy at reunion, and pleasant and frequent preoccupation with the baby during separations.

Acceptance dimension. Reflects the lack of resentment about the effect of the baby upon the parent's lifestyle and not experiencing the baby as a burden and is comprised of items 10, 11, 12. Acceptance is the desire to identify and gratify the infant's emotional and physical needs, taking priority over the parent's own needs. Attachment is accompanied by a strong desire to protect the infant from harm, pain, or discomfort accepting his/her helplessness and dependency on the parent.

Tolerance dimension. Reflects a greater willingness and ability to tolerate behavior and is comprised of items 1, 2, 6. This includes an absence of feelings of anger and hostility towards the baby, an absence of feeling the baby is being deliberately difficult, and feeling generally relaxed during interactions with the infant. In the absence of attachment, it would more likely be experienced as irritating and frustrating.

Competence as parent dimension. This is a sense of confidence, competence, and satisfaction at being the mother/parent of the baby and is comprised of items 4, 5, 13, 18, 19. Competence as parent is reflected in knowledge acquisition, a desire to understand the infant, experiencing the baby as 'her own,' and perceiving herself as being patient in interactions with the baby.

The MAAS purports that the strength of attachment can be gauged by the strength (and/or frequency) of the subjective experiences. As such, this scale provided a more complete picture of the pregnant women's attachments to their fetuses during pregnancy following a previous loss. The MAAS is one of the most frequently selected scales used

in research to measure and quantify the mother-fetus relationship prior to birth (Zachariah, 1994; Laxton-Kane & Slade, 2002; Van den Bergh & Simons, 2009).

This tool has been tested on the research population of interest, women who are pregnant subsequent to a previous perinatal loss. Permission and instructions from the original author to utilize MAAS instruments were received (See Appendix O).

Data Management Plan and Analyses

Data Management Plan

To minimize a breach of confidentiality, no direct personal identifiers were attached to any study documents. All surveys were coded using a unique study number and stored on a secure and encrypted server. Only research team members and the PI had access to the information. All data were backed up nightly on a secure network; however, data may exist on back-ups or server logs beyond the timeframe of this research project. The study data collection period was 10 months. Data will be maintained for four years after the close of the study for potential further research purposes conducted by this study only. All data collected were reported as an aggregate and not individually.

Analytic Plan

Multiple regression was the statistical analysis used for this study because this technique investigates relationships between multiple independent variables and individual dependent variables of interest with a secondary purpose to explain a causal relationship among the variables (Mertler & Vannatta, 2005; Tabachnick & Fidell, 2007). Participant data entered electronically from SurveyMonkey was downloaded into SPSS (version 21) by the researcher. Data from surveys using the paper option were entered into SPSS (version 21) by the researcher.

The Statistical Package for the Social Sciences or SPSS version 21 (SPSS, Inc., Chicago, IL, USA) was the statistical program in this study. SPSS is the most widely used program for statistical analysis in the social sciences for market research, health research, survey companies, government, education research, marketing organizations and others.

Data Preparation

The data were sorted and reviewed for completeness and missing scores and to ensure that responses fell within the appropriate range for each question/tool. There were a total of 33 women who initiated the study. Missing data analysis revealed missing demographic data and one participant did not complete one question on the nine-item survey (IPIP) that measured the predictor variable, GA. Due to the small sample size, the case with this one missing data point was not removed. The selected method for imputing the missing data was to calculate that participant's average score on the eight available data points and to replace the missing data point with that value prior to analysis. Because some participants chose the response option, "Prefer not to answer" for MDV ethnicity and income, these MDVs were used only to describe the sample population and not included in the regression.

Because regression is essentially a procedure to maximize the correlation between observed and predicted DV scores, it is highly sensitive to extreme cases. One or two outliers can adversely affect the interpretation of regression analysis (Mertler & Vannatta, 2005). It was essential that for each variable, outliers were identified and appropriately handled prior to running the regression analysis. This was accomplished by initial screenings of boxplots applying the statistical procedure, Mahalanobis distance. No such outliers were identified.

To prepare the final dataset for analysis, the nominal variables were coded within SPSS. For example, a yes response was coded to a 1 and a no response was coded to a 2. A similar coding process occurred for the survey's Likert scale responses. For example, variable responses of very inaccurate, moderately inaccurate, neither inaccurate nor accurate, moderately accurate, very accurate were coded 1 to 5, with 1 representing very inaccurate and 5 representing very accurate. Before further analysis, the variable coding was verified and confirmed for all responses. In preparation for the regression analysis, the interrelationships among the variables were examined using correlation analysis and to ensure that the assumption of multicollinearity was not violated. Evaluation of the data revealed no violations of the assumptions allowing for the regression analysis to proceed.

Assumptions for Multiple Regression

Most statistical tests rely upon certain assumptions about the variables used in the analysis. When these assumptions are not met, the results may not be trustworthy, resulting in a Type I or Type II error, or over- or under-estimation of significance or effect size(s). Violations of assumptions lead to serious biases, and when they are of little consequence, are essential to meaningful data analysis (Osborne & Waters, 2002). Several assumptions of multiple regression are "robust" to violation (e.g., normal distribution of errors), and others are fulfilled in the proper design of a study (e.g., independence of observations).

Assumption of Normality

Regression assumes that variables have normal distributions. Non-normally distributed variables (highly skewed or kurtotic variables, or variables with substantial outliers) can distort relationships and significance tests. Testing the assumption of

normality includes: visual inspection of data plots, skew, kurtosis, and P-P plots; Kolmogorov-Smirnov tests provided direct tests of normality. Outliers are identified either through visual inspection of histograms or frequency distributions, or by converting data to *z*-scores (Mertler & Vannatta, 2005; Osborne & Waters, 2002). Bivariate/multivariate data cleaning also is important in multiple regression including the examination of standardized or studentized residuals, or indices of leverage (Tabachnick & Fidell, 2007). Analyses by Osborne (2001) showed that removal of univariate and bivariate outliers can reduce the probability of Type I and Type II errors, and improve accuracy of estimates. Outlier (univariate or bivariate) removal is straightforward in most statistical software although it was not always desirable to remove outliers. Transformations (e.g., square root, log, or inverse), can improve normality, but complicate the interpretation of the results, and should be used deliberately and in an informed manner (Osborne & Waters, 2002).

Assumption of Linearity

Standard multiple regression can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature. It is essential to examine analyses for non-linearity because there are many instances in the social sciences where non-linear relationships occur (e.g., in the present study, caring behaviors, anxiety, attachment). If the relationship between independent variables (IV) and the dependent variable (DV) is not linear, the results of the regression analysis will under-estimate the true relationship. This under-estimation carries two risks: increased chance of a Type II error for that IV, and in the case of multiple regression, an increased risk of Type I errors (over-estimation) for other IVs that share variance with that IV

(Osborne & Waters, 2002). It is important that the nonlinear aspects of the relationship be accounted for to best assess the relationship between variables.

Cohen, Cohen, West, and Aiken (2003) and Tabachnick and Fidell (2007) suggest three primary ways to detect non-linearity. The first method is the use of theory or previous research to inform current analyses. However, as many prior researchers have probably overlooked the possibility of non-linear relationships, this method is not foolproof. A preferable method of detection is examination of residual plots (plots of the standardized residuals as a function of standardized predicted values, readily available in most statistical software packages). The third method of detecting curvilinearity is to routinely run regression analyses that incorporate curvilinear components (squared and cubic terms) or utilizing the nonlinear regression option available within statistical packages.

Assumption of Reliability

In the case of multiple regression, effect sizes of other variables can be over-estimated if the covariate is not reliably measured, as the full effect of the covariate(s) would not be removed. This is a significant concern if the goal of research is to accurately model the "real" relationships evident in the population. Although most authors assume that reliability estimates (Cronbach alphas) of .7-.8 are acceptable (e.g., Nunnally, 1978), and Osborne, Christensen, and Gunter (2001) reported that the average alpha reported in top educational psychology journals was .83, measurement of this quality still contains enough measurement error to make correction worthwhile, as illustrated below. Correction for low reliability is important to obtain a more accurate

picture of the "true" relationship in the population, and, in the case of multiple regression, to avoid over-estimating the effect of another variable.

With each independent variable added to the regression equation, the effects of less than perfect reliability on the strength of the relationship becomes more complex and the results of the analysis more questionable. With the addition of one independent variable with less than perfect reliability each succeeding variable entered has the opportunity to claim part of the error variance left over by the unreliable variable(s) (Osborne & Waters, 2002). The apportionment of the explained variance among the independent variables will be incorrect. The more independent variables added to the equation with low levels of reliability the greater the likelihood that the variance accounted for is not apportioned correctly. This can lead to erroneous findings and increased potential for Type II errors for the variables with poor reliability, and Type I errors for the other variables in the equation. This gets increasingly complex as the number of variables as the equation grows.

Assumption of Homoscedasticity

Homoscedasticity means that the variance of errors is the same across all levels of the IV. When the variance of errors differs at different values of the IV, heteroscedasticity is at issue. According to Tabachnick and Fidell (2007), slight heteroscedasticity has little effect on significance tests; however, when heteroscedasticity is marked, it can lead to serious distortion of findings and seriously weaken the analysis, thus, increasing the possibility of a Type I error. This assumption can be checked by visual examination of a plot of the standardized residuals (the errors) by the regression standardized predicted value, included within modern statistical packages as an option.

Ideally, residuals are randomly scattered around 0 (the horizontal line) providing a relatively even distribution. Heteroscedasticity is indicated when the residuals are not evenly scattered around the line. There are many forms heteroscedasticity can take, such as a bow-tie or fan shape. When the plot of residuals appears to deviate substantially from normal, more formal tests for heteroscedasticity should be performed. Possible tests for this are the Goldfeld-Quandt test when the error term either decreases or increases consistently as the value of the DV increases as shown in the fan shaped plot or the Glejser tests for heteroscedasticity when the error term has small variances at central observations and larger variance at the extremes of the observations as in the bowtie shaped plot (Tabachnick & Fidell, 2007). In cases where skew is present in the IVs, transformation of variables can reduce the heteroscedasticity.

Statistical Models Applying Multiple Regression to Study Variables

Multiple regression was the statistical method used to test both aims of this study. In preparation for the regression analysis, the interrelationships among all the study variables were examined using correlation analysis to ensure that the assumption of multicollinearity was not violated (this was verified with the statistical tests for multicollinearity in the regression output). Evaluation of the data revealed no violations of the assumptions allowing for the regression analysis to proceed.

Stage one of the sequential multiple regression entailed the entry of selected maternal demographics in block format. The following five selected MDVs were secondary predictor variables in this study: number of pregnancies, number of living children, age at time of previous loss, gestational age at time of previous loss, and length of time between previous loss and current pregnancy. Hierarchical multiple regression

method was used because this study contained several potential variables that may have an effect on the dependent variable. The importance of the IVs in the prediction equation was determined by the researcher following logical considerations with lesser variables (MDVs) entered first. Analysis for each MDV occurred in steps with information both in and out of the regression equation input into the statistical analysis program, Statistical Package for the Social Sciences or SPSS version 21 (SPSS, Inc., Chicago, IL, USA) to determine the specific amount of variance each MDV accounted for in predicting the dependent variable, pregnancy-specific anxiety (PSA).

Stage two of the sequential multiple regression addressed the first research aim of this study: determine whether nurse caring behaviors (NCB) at the time of perinatal loss predicted pregnancy-specific anxiety (PSA) in women who are pregnant following their loss while controlling for generalized anxiety (GA). This occurred by adding GA as an additional secondary variable (its own "set") to evaluate what it added to improving the regression prediction on PSA over and above the lesser predictor set, MDV. Stage three of the sequential multiple regression further addressed the first aim of this study by adding nurse caring behaviors (NCB) as the primary "set" of variables to evaluate what it added to improving the regression prediction on PSA over and above the lesser predictor sets of MDV and GA. See Figure 3.

Figure 3. Statistical Model – MDV and GA and NCB Predicting PSA.

The multiple regression process was repeated to achieve this study's second aim: determine whether nurse caring behaviors (NCB) at the time of and following perinatal loss predicted maternal-fetal attachment (MFA) in women who are pregnant following their loss. Stage one of the sequential multiple regression entailed the entry of selected maternal demographics in block format. The five selected MDVs were secondary predictor variables in this study: number of pregnancies, number of living children, age at time of previous loss, gestational age at time of previous loss, and length of time between previous loss and current pregnancy. Hierarchical multiple regression method was used because there are several potential variables that predicted the effect on the dependent variable. The importance of the IVs in the prediction equation was determined by the researcher following logical considerations with lesser variables (MDVs) entered first. Analysis for each MDV occurred in steps with information both in and out of the regression equation input into SPSS version 21(SPSS, Inc., Chicago, IL, USA) to determine the specific amount of variance each MDV accounted for in predicting the dependent variable, maternal-fetal attachment (MFA). Stage two of the sequential multiple regression further addressed the second aim of this study by adding nurse caring behaviors (NCB) as the primary "set" of variables to evaluate what it added to improving

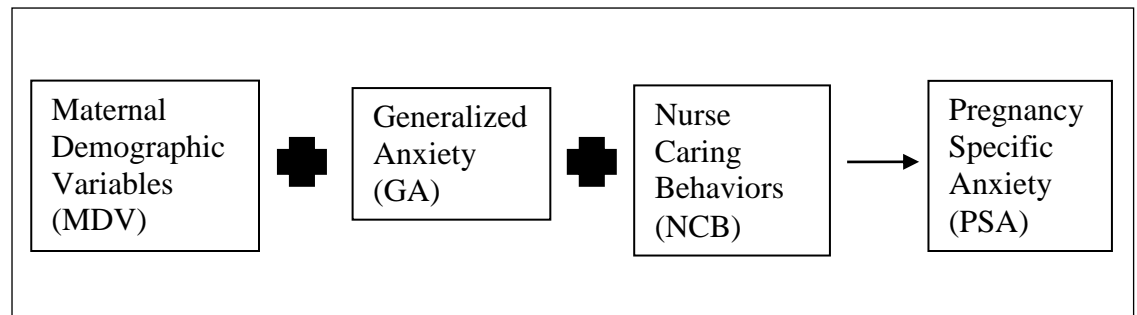the regression prediction on MFA over and above the lesser predictor set of MDV. See

Figure 4.

Figure 4. Statistical Model – MDV and NCB Predicting MFA.

CHAPTER FOUR

RESULTS

Study Purpose and Chapter Overview

The purpose of this chapter is to describe the findings of this investigation. First, a description of the study's participants is provided. Next, the correlations among the seven predictor variables as well as the interrelationships between these variables and the two dependent variables are presented. Finally, the findings of the analyses of each of the study's specific aims are addressed.

Description of Sample

Sample Size

The study's participants included 33 pregnant women who had experienced a previous perinatal loss. During the 10-month study enrollment period, a total of sixty-seven women were screened and determined to be study eligible. Fifty-two agreed to be contacted by a member of the research team to receive additional information about participation. Of the 52 potential participants, 19 ultimately did not participate in the study. Two women declined participation after being provided further information. Five women did not respond to multiple messages left on their phone, whereas two women's phones were disconnected. Four women requested the research team member to call back at another time, yet did not respond to phone messages left by the team. Three women did not show up for their scheduled time with a member of the research team and did not respond to messages to reschedule. Finally, three women who had a scheduled time to meet with a member of the research team to complete the study delivered their babies

prior to their appointments and were subsequently ineligible for study participation. Participants were offered a gift card for their participation.

Participant Demographics

The study participants included 33 expectant women. Their ages ranged from 18 to 42 years at the time of assessment ($M = 30.48$, $SD = 6.5$). Just over one third of the participants (36.4%; $n = 12$) identified themselves as African American, whereas 33.3% ($n = 11$) identified as Caucasian, 21.2% ($n = 7$) identified as Hispanic, 3% ($n = 1$), identified as Asian, and two preferred not to answer. Regarding the education level of the participants, 12.1% ($n = 4$) had a graduate or post graduate degree, another 12.1% ($n = 4$) had bachelor's degree, 21.2% ($n = 7$) had a two-year college degree, 45.5% ($n = 12$) had a high school diploma, and 9.1% ($n = 3$) had less than a high school education. Annual household income was reported by 30.3% ($n = 10$) between \$50,001 - \$100,000, 18.2% ($n = 6$) less than \$10,000, 15.2% ($n = 5$) between \$24,001 - \$50,000, another 15.2% ($n = 5$) over \$100,000, 12.1% ($n = 4$) between \$10,001 - \$25,000, and 9.1% ($n = 3$) chose not to answer. Almost 70% of the participants (69.7%, $n = 23$) identified themselves as married, 15.2% ($n = 5$) were in a relationship with a significant other, 12.1% ($n = 4$) were single, and 3% ($n = 1$) had a domestic partner. Table 3 summarizes the descriptive demographic characteristics of the study participants.

Participant Obstetric Characteristics

All participants had a history of previous perinatal loss to meet study eligibility. Most of the study participants, 27.3%, ($n = 9$) were pregnant for the third time; 18.2% ($n = 6$) were pregnant for the second time; 18.2% ($n = 6$) were pregnant for the fourth time; 15.2% ($n = 5$) were pregnant for the fifth time; 15.2% ($n = 5$) were pregnant for the

91

Table 3

Sociodemographic characteristics of study participants ($N = 33$)

Characteristics	Participant	
	n	%
Race		
White/Caucasian	11	33.3
Black/African American	12	36.4
Hispanic	7	21.2
Asian	1	3.0
Prefer not to answer	2	6.1
Education Level		
< High School	3	9.1
High School Diploma	15	45.5
2-year College Degree	7	21.2
Baccalaureate	4	12.1
Graduate Degree	4	12.1
Annual Household Income		
$0-10,000	6	18.2
$10,001-25,000	4	12.1
$25,001-$50,000	5	15.2
$50,001-$100,000	10	30.3
over $100,000	5	15.2
Prefer not to answer	3	9.1

seventh time; and 6.1% ($n = 2$) were pregnant for the sixth time. Of the study

participants, 36.4% ($n = 12$) had no living children; 36.4% ($n = 12$) had one living child;

 12.1% ($n = 4$) had two living children; 9.1% ($n = 3$) had three living children; 3% ($n = 1$)

had four living children; and 3% ($n = 1$) had five living children.

The study participants' mean age at the time of the perinatal loss was 28.15 years

(*SD* 7.05). The mean gestational age of loss was 2.24 months (*SD* 7.05). Perinatal losses

occurred during the second trimester (3 months – 6 months) in 45.5% ($n = 15$) of the

study participants; 39.4% ($n = 13$) of the perinatal losses occurred during the third

trimester (7 months – 9 months); and 15.2% ($n = 5$) of the perinatal losses occurred

during the first trimester (< 3 months). For 72.7% of the study participants, their current

pregnancy occurred within three years or less from the time of their previous perinatal

loss. Of this group, 42.4% ($n = 14$) were pregnant within two years of their previous loss;

21.2% ($n = 7$) were pregnant within one year or less of their previous loss; whereas 9.1%

($n = 3$) were pregnant within three years of their previous loss.

Descriptive Statistics for the Study Variables

Table 4 summarizes means, standard deviations, ranges, and internal reliability

coefficients for all major study variables.

Table 4

Descriptive Statistics for All Study Variables.

Variable	Number of Items	*Mean*	*(SD)*	Potential Range	Actual Range	α
Maternal Demographic Variables (MDV)	5					
# Pregnancies		4.09	1.68		2 to 7	
# Living Children		1.15	1.28		0 to 5	
Age at loss (yrs)		28.15	7.05		13 to 41	
Gestational Age at Loss (mos)		2.24	0.71		0 to 9	
Time Since Loss (yrs)		2.33	3.08		0 to 12	
Generalized Anxiety (GA)	10	29.27	6.79	10-50	15 to 42	0.83
Nurse Caring Behaviors (NCB)	24	125.61	21.4	24 - 144	74 to 144	0.96
Pregnancy Specific Anxiety (PSA)	9	51.84	16.24	0 - 100	11.11 to 83.78	0.83
Maternal Fetal Attachment (MFA)	19	83.21	6.57	19 - 95	64 to 92	0.82

Associations among Study Variables

In preparation for the regression analysis, the intercorrelations among the predictor variables (MDVs, GA, NCB) and their interrelationships with the two dependent variables (PSA, MFA) were evaluated to ensure that the assumption of multicollinearity was not violated. Table 5 summarizes the correlations among the study variables.

Not surprisingly, there was a large and significant correlation noted between MDV number of pregnancies and MDV number of living children ($r = .720$, $p < .001$) but no significance with the other MDVs. A significant correlation was noted between MDV age

Table 5

Correlation Matrix of All Predictor Variables and Dependent Variables.

		MDV # Preg	MDV # Living Children	MDV Age at Loss	MDV Gest Age at Loss	MDV Time Since Loss (yrs)	GA Total	NCB Total	PSA Total	MFA Total
MDV # Preg	Pearson Correlation	1	.720**	.088	-.281	.338	-.090	-.012	.164	-.103
	Sig. (2-tailed)		.000	.625	.113	.055	.619	.947	.362	.567
	N	33	33	33	33	33	33	33	33	33
MDV # Living Children	Pearson Correlation	.720**	1	.046	-.042	.034	-.138	.117	.218	-.320
	Sig. (2-tailed)	.000		.800	.817	.849	.443	.518	.223	.069
	N	33	33	33	33	33	33	33	33	33
MDV Age at Loss	Pearson Correlation	.088	.046	1	-.083	-.390*	.021	.042	.023	-.121
	Sig. (2-tailed)	.625	.800		.647	.025	.909	.816	.900	.501
	N	33	33	33	33	33	33	33	33	33
MDV Gest Age at Loss	Pearson Correlation	-.281	-.042	-.083	1	.048	.038	.361*	-.180	-.119
	Sig. (2-tailed)	.113	.817	.647		.792	.835	.039	.315	.510
	N	33	33	33	33	33	33	33	33	33
MDV Time Since Loss (yrs)	Pearson Correlation	.338	.034	-.390*	.048	1	-.184	-.075	.174	.301
	Sig. (2-tailed)	.055	.849	.025	.792		.306	.679	.333	.089
	N	33	33	33	33	33	33	33	33	33
GA Total	Pearson Correlation	-.090	-.138	.021	.038	-.184	1	-.015	-.056	.062
	Sig. (2-tailed)	.619	.443	.909	.835	.306		.936	.756	.730
	N	33	33	33	33	33	33	33	33	33
NCB Total	Pearson Correlation	-.012	.117	.042	.361*	-.075	-.015	1	-.482**	.010
	Sig. (2-tailed)	.947	.518	.816	.039	.679	.936		.005	.955
	N	33	33	33	33	33	33	33	33	33
PSA Total	Pearson Correlation	.164	.218	.023	-.180	.174	-.056	-.482**	1	-.089
	Sig. (2-tailed)	.362	.223	.900	.315	.333	.756	.005		.623
	N	33	33	33	33	33	33	33	33	33
MFA Total	Pearson Correlation	-.103	-.320	-.121	-.119	.301	.062	.010	-.089	1
	Sig. (2-tailed)	.567	.069	.501	.510	.089	.730	.955	.623	
	N	33	33	33	33	33	33	33	33	33

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

at loss and MDV time since loss ($r = -.390$, $p = .025$) but no significance with the other

MDVs. No significant relationships were noted between the five predictor MDVs and

GA. Only MDV gestational age at loss showed a significant relationship with predictor

variable NCB ($r = .361$, $p = .039$). No significant relationship was noted between GA and

NCB.

There were no significant relationships between any of the five MDVs with the

outcome variable PSA or between GA and the outcome variable PSA. This study

demonstrated significance between predictor variable NCB and the outcome variable

PSA ($r = -.482$, $p = .005$). There were no significant relationships noted between any of

the predictor variables and the outcome variable MFA. Evaluation of the correlation data

revealed no violations of the assumptions allowing for the regression analysis to proceed.

Analysis of Specific Aims

Specific Aim One

A multiple regression analysis was performed to predict pregnancy-specific

anxiety (PSA) in women who are pregnant following a previous loss while controlling for

maternal demographic variables (MDV) and generalized anxiety (GA). Data screening

revealed missing data for one participant on one question within the GA survey.

Elimination of this case would compromise the already small sample size. Thus, the

missing data was imputed by calculating the participant's average score on the eight

available data points within the GA survey and used to replace the missing data point

with that value prior to analysis.

The multiple regression model, Figure 3, with all predictors produced $R^2 = .365$,

R^2 adj = .187, $F(7, 25)$ = 2.053, p = .088. This model accounted for 36.5% of variance for

PSA.

Figure 3. Statistical Model – MDV and GA and NCB Predicting PSA.

Addition of the predictor, GA, to the regression equation did not significantly

Improve the ability to predict the outcome variable, PSA, at R^2 = .155, R^2 adj = -.040, $F(6,$

26) = .794, p = .583. Table 6 presents each step across models for predicting PSA.

Table 6

Model Summary of MDV and GA and NCB Predicting PSA.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.391[a]	.153	-.004	16.27201	.153	.972	5	27	.452
2	.393[b]	.155	-.040	16.55946	.002	.071	1	26	.792
3	.604[c]	.365	.187	14.63732	.210	8.277	1	25	.008

a. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs)
b. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs), GA Total
c. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs), GA Total, NCB Total

Table 7 presents the *F*-test and corresponding level of significance for each step

of the regression model to examine the degree to which the relationship between PSA

and the predictor variables are linear. In this study, the *F*-test did not demonstrate

significance. Therefore, the relationship is not linear and thus, does not significantly

predict PSA.

Table 7

ANOVA Summary of MDV and GA and NCB Predicting PSA.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1286.744	5	257.349	.972	.452[b]
Residual	7149.011	27	264.778		
Total	8435.755	32			
2 Regression	1306.145	6	217.691	.794	.583[c]
Residual	7129.610	26	274.216		
Total	8435.755	32			
3 Regression	3079.477	7	439.925	2.053	.088[d]
Residual	5356.278	25	214.251		
Total	8435.755	32			

a. Dependent Variable: PSA Composite
b. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs)
c. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs), GA Total
d. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs), GA Total, NCB Total

In this study, of the seven predictor variables, only NCB demonstrated a

significant contribution to the regression model for pregnancy specific anxiety at $p = .008$

and a standardized Beta value of -.501. Table 8 presents a summary of regression

coefficients.

Table 8

Coefficients for Model Variables Predicting PSA

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	59.680	19.138		3.118	.004
	MDV # Preg	-3.619	3.217	-.375	-1.125	.270
	MDV # Living Children	5.814	3.684	.458	1.578	.126
	MDV Age at Loss (yrs)	.349	.469	.151	.744	.463
	MDV Gest Age at Loss (mos)	-6.215	4.522	-.271	-1.374	.181
	MDV Time Since Loss(yrs)	1.881	1.237	.357	1.521	.140
2	(Constant)	56.280	23.295		2.416	.023
	MDV # Preg	-3.764	3.319	-.390	-1.134	.267
	MDV # Living Children	6.025	3.833	.474	1.572	.128
	MDV Age at Loss (yrs)	.361	.479	.157	.753	.458
	MDV Gest Age at Loss (mos)	-6.346	4.628	-.277	-1.371	.182
	MDV Time Since Loss(yrs)	1.966	1.298	.373	1.514	.142
	GA Total	.120	.450	.050	.266	.792
3	(Constant)	93.044	24.234		3.839	.001
	MDV # Preg	-3.332	2.937	-.346	-1.134	.267
	MDV # Living Children	6.455	3.391	.508	1.903	.069
	MDV Age at Loss (yrs)	.378	.424	.164	.893	.380
	MDV Gest Age at Loss (mos)	-1.783	4.388	-.078	-.406	.688
	MDV Time Since Loss(yrs)	1.630	1.154	.309	1.413	.170
	GA Total	.077	.398	.032	.193	.849
	NCB Total	-.380	.132	-.501	-2.877	.008

a. Dependent Variable: PSA Composite

Specific Aim Two

A multiple regression analysis was performed to predict maternal fetal attachment (MFA) in women who are pregnant following a previous loss while controlling for maternal demographic variables (MDV). The multiple regression model, Figure 4, with all predictors produced $R^2 = .242$, $R^2_{adj} = .067$, $F(6, 26) = 1.381$, $p = .259$. This model accounted for 24.2% of

Figure 4. Statistical Model – MDV and NCB Predicting MFA.

the variance for MFA. The addition of the predictor, NCB, to the regression equation did not significantly improve the ability to predict the outcome variable, MFA.

Table 9 presents the *F*-test and corresponding level of significance for each step of the regression model to examine the degree to which the relationship between MFA and the predictor variables are linear. In this study, the *F*-test did not demonstrate significance. Therefore, the relationship is not linear and thus, does not significantly predict MFA.

Table 9

ANOVA Summary of MDV and NCB Predicting MFA.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	307.082	5	61.416	1.543	.210[b]
	Residual	1074.434	27	39.794		
	Total	1381.515	32			
2	Regression	333.850	6	55.642	1.381	.259[c]
	Residual	1047.665	26	40.295		
	Total	1381.515	32			

a. Dependent Variable: MFA Total
b. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs)
c. Predictors: (Constant), MDV# Preg, MDV #Living Children, MDV Age at Loss(yrs), MDV Gest Age at Loss(mos), MDV Time Since Loss(yrs), NCB Total

In this study, the predictor variable, NCB, did not demonstrate a significant contribution to the regression model for maternal fetal attachment at $p = .422$ and a standardized Beta value of .152. Table 10 presents a summary of regression coefficients.

Table 10.

Coefficients for MDV, GA, and NCB Predicting MFA

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	86.891	7.419		11.711	.000
	MDV # Preg	.722	.480	.338	1.505	.144
	MDV # Living Children	-1.597	1.428	-.311	-1.118	.273
	MDV Age at Loss (yrs)	-1.465	1.753	-.158	-.835	.411
	MDV Gest Age at Loss (mos)	.014	.182	.015	.077	.939
	MDV Time Since Loss(yrs)	-.156	1.247	-.040	-.125	.902
2	(Constant)	82.528	9.187		8.983	.000
	MDV # Preg	.759	.485	.356	1.566	.129
	MDV # Living Children	-1.659	1.439	-.323	-1.153	.259
	MDV Age at Loss (yrs)	-2.019	1.891	-.218	-1.068	.295
	MDV Gest Age at Loss (mos)	.011	.183	.012	.062	.951
	MDV Time Since Loss(yrs)	-.202	1.256	-.052	-.161	.873
	NCB Total	.047	.057	.152	.815	.422

a. Dependent Variable: MFA Total

Summary

This sample of 33 pregnant women was primarily married (70%), middle to upper income (65%), and in their mid-20s to mid-30s. The group was almost equally divided with college education and high school diploma or less. Although the sample size was small, it should be noted that over one third of the participants identified themselves as African American participants (36.4%), followed by Caucasians (33.3%) and Hispanics (21.2%) which represents the ethnic diversity of the sample community.

All the women in this study experienced a previous perinatal loss with the majority of the losses (86%) occurring in the second or third trimester. One third of the women had no living children. There was a significant correlation noted between number of pregnancies and number of living children. A summary of the findings of the study's specific aims is displayed in Table 11. The influence of nurse caring behaviors on the woman's her current pregnancy following a previous perinatal loss including pregnancy-specific anxiety and maternal-fetal attachment to her unborn child was investigated. This study showed that nurse caring behaviors significantly affected pregnancy specific anxiety. This study did not demonstrate that NCB had an effect on maternal fetal attachment in pregnant women following a previous perinatal loss.

Table 11

Summary of the Findings of the Study's Specific Aims.

Specific Aim	Summary of Findings
1. Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict pregnancy-specific anxiety (PSA) in women who are pregnant following their loss.	• NCB showed a significant contribution in predicting pregnancy specific anxiety at $p = .008$. Addition of the two predictors, GA and NCB, to the regression equation accounts for 36.5% variance in PSA.
2. Determine whether nurse caring behaviors (NCB) at the time of perinatal loss predict maternal-fetal attachment (MFA) in women who are pregnant following their loss.	• NCB showed no significance in predicting MFA at $p = .422$.

CHAPTER FIVE

DISCUSSION

Study Purpose and Chapter Overview

The purpose of this study was to determine if nurse caring behaviors during the perinatal loss event affected pregnancy-specific anxiety and maternal-fetal attachment in women who become pregnant following that loss. This chapter will describe the study findings. First, a brief summary of the relevant associations among the major study variables will be presented. Second, pertinent findings are explored for each specific study aim and how the results are similar to or contrast with previous studies. Next, study strengths and limitations are delineated. Then implications for knowledge development within nursing education, management, and practice, as well as directions for future nursing research will be addressed. Last, the conclusions obtained from this research will be presented.

Associations among Major Study Variables

The intercorrelations among the predictor variables (MDVs, GA, NCB) and their interrelationships with the outcome variable (PSA) were evaluated. Not surprisingly, there was a large and significant correlation noted between MDV number of pregnancies and MDV number of living children ($r = .720$, $p < .001$) but no significance with the other MDVs. The majority ($n = 27$) of the sample were pregnant three or more times, and 24 of the 33 women had no living children ($n = 12$) or one living child ($n = 12$). This is consistent with findings in the literature (Armstrong, 2002; Cote-Arsenault, 2007; Tsartsara & Johnson, 2006), studies showing higher anxiety about the outcome of the current pregnancy in women with prior pregnancy losses and no living children. This may be related in part to their concern about ever being able to deliver a healthy child if they have never successfully completed a pregnancy (Armstrong, 2002; Tsartsara &

Johnson, 2006). Whether having living children serves as a protective factor against intense grief and development of psychopathology remains unclear. Previous studies conflict if having living children lessens psychological distress (Kirkley-Best, 1981; Neugebauer et al., 1997; LaRoche et al., 1984). Further exploration may be warranted to better understand this relationship and its potential clinical implications.

A significant inverse correlation was noted between MDV age at loss and MDV Time since loss ($r = -.390$, $p = .025$). The finding reflects the composition of the study sample with 15.2% ($n = 5$) teenagers at the time of their pregnancy loss and who may have chosen to delay a subsequent pregnancy. On the other hand, the women within the sample who were older at the time of loss had a shorter time since the loss. Within the sample, 63.6% ($n = 21$) became pregnant within one year or less of their previous perinatal loss. This result aligns with the finding of Cuisinier, Janssen, Degraauw, Bakker and Ogduin (1996) whose study found that 80% of women became pregnant again within 18 months after perinatal loss. Nurses are in a unique position of being able to improve the long-term well-being of the woman and her family following perinatal loss, by first strengthening her power to cope with the loss of her baby and second, by not causing her additional psychological trauma (Trulsson & Radestad, 2004) through incorporation of caring behaviors in all interactions.

Only MDV gestational age at loss showed a significant relationship with predictor variable NCB ($r = .361$, $p = .039$). This is consistent with other studies that bereaved parents were most appreciative of actions by nurses that demonstrated emotional support and attention to both the physiological and safety needs of both the mother and her dying or deceased baby (Gold, 2007; Lemmer, 1991; Sanchez, 1991). As gestational age at loss

increases, the likelihood of an induced delivery also increases. During this devastating loss experience, nurse activities perceived by parents that demonstrate caring include sensitivity to and an empathic awareness of the emotional pain of the loss along with a genuine desire to help them through it (Gold, 2007; Lemmer, 1991; Fenstermacher & Hupcey, 2013). Parents are acutely aware of how the nurses treated their babies, and nurse who dressed or bathed a deceased baby in a caring manner or treated the body respectfully were viewed highly favorable by the family (Gold, 2007; Lemmer, 1991; Sanchez, 1991). Nurses were identified as the primary caregivers who demonstrated expressions of caring by providing parents with tangible evidence of their baby's life, such as photos, locks of hair, and hand or foot molds (Kavanaugh & Hersberger, 2005; Lemmer, 1991).

This relationship is critical for nurses to understand to effectively support women experiencing perinatal loss and pregnancy after loss. Nurses must be aware of the difficult emotions surrounding perinatal loss because there is no prescribed ending point for perinatal bereavement. This suggests that the role nurses undertake in providing bereavement support interventions such as creating mementos has potentially enduring influence during pregnancy following perinatal loss (Fenstermacher & Hupcey, 2013).

Summary of Findings Related to Previous Research

Specific Aim One

This study's significant finding ($p = .008$) that nurse caring behaviors influence pregnancy-specific anxiety in pregnant women following a previous loss was consistent with previous studies. Although no studies were identified that specifically investigated nurse caring behaviors and pregnancy specific anxiety in pregnancy after loss, the

106

literature does address the concepts individually. Studies on pregnancy after perinatal loss consistently reveal the highly anxious nature of these pregnancies (Armstrong, 2002; Armstrong & Hutti, 1998; Côté –Arsenault & Dombeck, 2001; Côté-Arsenault & Marshall, 2000; Franche & Mikail, 1999; Gaudet, 2010; Hughes, Turton, & Evans, 1999; Theut et al., 1988). Prenatal anxiety of expectant mothers with and without a history of perinatal loss shows that women with prior losses demonstrate increased pregnancy-specific anxiety in their current pregnancy compared to expectant mothers with no history of loss (Armstrong, 2002; Armstrong & Hutti, 1998; Côté –Arsenault & Dombeck, 2001; Côté-Arsenault & Marshall, 2000; Franche & Mikail, 1999). Côté –Arsenault's (2007) study showed that anxiety in the pregnancy subsequent to loss should be expected and addressed appropriately throughout the current pregnancy.

The literature is scant on how nurse caring interventions can enhance patients' outcomes and help them to deal with the stress of illness more effectively (Mayer 1987, Cohen et al., 2000). Although not specific to this study's sample, there is a growing body of literature (Johansson et al. 2005; Muller-Staub et al. 2006; Suhonen et al. 2008) that explores how various nursing interventions, such as nursing assessment and patient education, can be beneficial to the patient. Previous reports have described the concepts related to caring interventions and their efficacy on select patient outcomes such as patient satisfaction and well-being (Wolf et al. 2003, Larrabee et al. 2004, Green & Davis 2005, Wu et al. 2006, Raffii et al. 2008). The patient populations of the majority of these studies were oncology, rehabilitation, long-term facility, psychiatric, and acute medical-surgical (Papastavrou, Efstathiou, & Charalambous, 2011).

Geller, Psaros, and Kornfield (2010) examined the literature and reported on women's satisfaction with pregnancy loss aftercare in four categories: attitudes of healthcare providers, provision of information, interventions provided, and follow-up care. Consistent themes noted on what women found helpful included being informed, being provided choices related to their care when possible, and perceiving their caregivers as compassionate. Knowledge of this information is important because of its effect on the woman's perception of her patient care experience not only at the time of the loss event but its possible influence on her anxiety level in a subsequent pregnancy following that loss event.

As front line health care providers, nurses are in a unique position to directly influence families' experiences of feeling either supported or helpless during and after perinatal loss (Gold, 2007; Lundqvist, Nilstun, & Dykes, 2002). Nurses spend the greatest amount of time providing comprehensive care and have the greatest opportunity to affect the patient's perception of the caring experience (Calhoun, 1994). Critical to the caring process is the ability to accurately identify the nuances and meanings of another's situation (Swanson 1990, 1991; Clarke & Wheeler 1992; McCance 2003) through well-honed assessment skills (Sherwood 1997; Swanson, 1991; Wilkin & Slevin, 2004). This is followed by the execution of expert physical, psychosocial and spiritually-oriented nursing interventions (Heskins, 1997; Yam & Rossiter, 2000; Turkel, 2001; Wilkin & Slevin, 2004). These interventions include not only doing and advocating for patients, but also empowering them to care for themselves (Leininger, 1981; Swanson-Kauffman, 1986; Swanson 1990, 1991). The findings from this study support previous studies and

demonstrate evidence that nurse caring behaviors do influence pregnancy specific anxiety in pregnant women with a history of previous loss, ($p = .008$).

Specific Aim Two

This study's finding that there was no effect ($p = .422$) of nurse caring behaviors on maternal-fetal attachment in pregnant women following a previous perinatal loss was consistent with findings in the literature. It seemed reasonable to explore in this study the potential influence nurse caring behaviors may have on maternal fetal attachment in pregnancy following loss because the literature (Cote-Arsenault & Mahlangu, 1999; DeBackere, Hill, & Kavanaugh, 2008; Tsartsara & Johnson, 2006) suggests these women may withhold emotional attachment to the unborn baby as a consequence of heightened concern for the baby's well-being and another potential loss. Although no studies were identified that specifically investigated relationships between nurse caring behaviors and maternal fetal attachment in pregnancy after loss, the literature does address the concepts individually. Nurse caring behaviors were addressed in the previous section related to specific aim one.

Armstrong (2002) found that although prior loss experience substantially affected their emotional distress during the subsequent pregnancy; this distress did not appear to influence the developing prenatal attachment. Tsartsara and Johnson (2006) concluded that regardless of loss history, prenatal attachment occurred the same in women during the third trimester of pregnancy. Other researchers suggest that there is an effort by some parents to delay attachment to their current baby in a pregnancy after perinatal loss (Armstrong, 2001; Armstrong & Hutti, 1998; Côté-Arsenault & Mahlangu, 1999; Côté-Arsenault & Marshall, 2000; Côté-Arsenault & Morrison-Beedy, 2001; Rillstone & Hutchinson, 2001; Sandbrook& Adamson-Macedo, 2004).

A possible explanation might be that the high levels of anxious-depressive symptomatology seen in pregnant women after perinatal loss interferes with the prenatal attachment to the child. It seems that anxiety interferes with the intensity of attachment (represented by the time spent thinking about the baby, talking about it, touching it or dreaming about it), meanwhile feelings of grief and depressive syndromes interfere with the quality of the prenatal attachment to the subsequent child (tenderness, proximity, or the pleasure of interacting with the child) (Armstrong & Hutti, 1998; Wallerstedt et al., 2003).

Difficulties in investing emotionally in the pregnancy and the attachment with the child to be born appear to be the result of a defensive process, the aim of which is to protect oneself against all possibilities of an eventual loss. This mechanism is perceived by Côte-Arsenault and Mahlangu (1999) as a resistance to preparing physically, emotionally and socially for the coming child. The longitudinal study conducted by Côte-Arsenault and Dombeck (2001) during pregnancy up until the birth of the next child similarly revealed the link between anxiety during a pregnancy and previous loss, and suggested that the anxiety was associated with the importance placed upon the loss, the degree of personification of the deceased child and attachment to the child.

Although this study did not show a significant finding between nurse caring behaviors and maternal-fetal attachment, it remains important to evaluate parent-infant relationships after birth in order to determine the effect a previous pregnancy loss may have on future parent-infant attachment. This relationship is critical for nurses to understand to effectively support parents experiencing perinatal loss and pregnancy after loss.

110

Study Strengths and Limitations

Strengths

A major strength of this study was that the questionnaires were reliable and valid measures for the major variables of nurse caring behaviors (CBI-24), pregnancy specific anxiety (PAS), and maternal fetal attachment (MAAS) (Condon, 1993; Cote-Arsenault, 2003; Yu, Larrabee, & Putman, 2006). Another strength of this study was the inclusion criteria for participants to be at least in the second trimester of pregnancy. This allowed more time for women to confirm the pregnancy and adjust to the pregnancy before examining their anxiety or feelings of attachment.

Limitations

Several limitations of the study warrant consideration. As a result of challenges with the recruitment process, a smaller sample size than originally was projected was obtained. As such, findings from this study should be interpreted with caution and are best considered as preliminary. Low statistical power, for example, may have prevented the judging of potentially important associations to be significant. The challenges experienced with recruitment are informative because they highlighted the difficulties in making contact with women exposed to perinatal loss and capturing a representative sample. Interestingly, several of the participants expressed appreciation that the subject matter was being investigated and that they had the opportunity to share their experiences.

The volunteer sample was primarily referred by their physician or support group facilitator, which made it difficult to make statements as to how representative the current sample was of the larger perinatal loss population. Thus, the findings may reflect experiences of women most affected by their loss and desire to share their stories. There

was no way to contact women who did not wish to participate, so differences between participants and non-participants are unknown.

The amount of variability in the time elapsed since loss was a significant limitation of the current study ranging from less than one year up to twelve years with a mean of 2.33 years (*SD* 3.08). This study required all of the participants to provide retrospective reports of their loss experience. Retrospective reports are influenced by many factors including hindsight biases, life experiences, and changes in perspective. The majority of sample was well educated, financially stable, married, and had living children. These characteristics may limit generalizability of this sample.

Implications

As front line health care providers, nurses are in a unique position to directly influence women's experiences of feeling either supported or helpless after the death of their infant (Gold, 2007; Lundqvist, Nilstun, & Dykes, 2002). Nurses' words and actions undertaken at the time of the pregnancy loss are remembered very deeply in spite of elapsed time (Lundqvist, Nilstun, & Dykes, 2002; Ujda & Bendiksen, 2000). It is estimated that 59 – 86% of women with previous perinatal loss will become pregnant again (O'Leary, 2004; Cordle & Prettyman, 1994).

Nursing Education

Understanding the experience from the mother's perspective on what she finds as helpful and caring interventions informs essential education and training for nurses and health providers who interact with these women during a vulnerable time. This can begin by modifying pre-licensure curricula to immerse nursing students in the language of what it means to experience wholeness and the role of nurses in promoting, restoring, or

112

maintaining optimal wellness for the patients they care for (Swanson & Wojnar, 2004; Swanson, 2006).

Clinical educators must ensure that training and orientation include patient needs during subsequent pregnancies and how staff interactions affect patient anxiety. Specialized curriculums can be developed to address patient and family needs during perinatal bereavement including cultural traditions and religious rituals. Recognizing a patient's culture or religion influences decisions about medical interventions, the need for basic death and palliative training for all staff is essential in anticipating care and handling of the infant at the time of death, autopsies, funerals, and even photographs. Regular training for staff on grief and bereavement issues and how to sensitively assist families undergoing this experience are essential to maintain competency and comfort levels of staff.

Providers must receive education on techniques in discussing sensitive issues such as death and bereavement as well as navigating the grief process for themselves and their patients (Roehrs, Masterson, Alles, Witt, & Rutt, 2008). Inclusive within the discussion should be specific topics on how nurses might cope with their personal feelings related to the death of a baby and interacting with women who are pregnant following the loss. Two studies (Rock, 2004; Chan et al., 2005) described the comfort levels of nurses who care for families experiencing perinatal loss and concluded that there is a need for more education on bereavement care to improve communication skills to facilitate the comfort nurses have in providing this care.

Nursing Management

The staff selection process is an essential function for perinatal nurse managers because caring for the bereaved patient during a loss event is an important aspect of labor nursing. Identifying and hiring nurses who exhibit caring attributes and value caring behavior contributions to overall patient care outcomes can be facilitated by use behavioral-based selection tools. Key characteristics identified as "nurse caring" traits should be incorporated into the interview questions.

Beyond the traditional orientation and training, perinatal managers might consider developing a subspecialty of perinatal nursing within their institution's professional advancement career track for staff with demonstrated skills and strengths in supporting these patients and their families. Perinatal clinical nurse educators and advanced practice nurses might consider developing specialized curriculum with an emphasis on perinatal bereavement that includes a mentor relationship for inexperienced nurses with more seasoned staff or palliative care nurses. Opportunity should to be provided for staff to "practice" caring interventions, ideally within a simulation lab or classroom setting where feedback is immediately provided. Using Benner's novice to expert theory (2001) as the theoretical framework, skill and knowledge in coping and caring for women experiencing perinatal loss is refined through the development of expertise. An adjunct to the novice to expert concepts is Swanson's (1993) midrange theory of caring, which provides structure for the connections that nurses make in caring for bereaved families. Patient satisfaction surveys might include customized questions specific for patients who experienced a loss to evaluate the effectiveness of nurse interventions. Nurse managers must assure that procedures are in place to support staff assigned to care for bereaved patients and families

to prevent burn out. This includes ensuring policies and protocols are in place to provide personal support and assistance for nurses who are caring for bereaved families to help them cope with their personal feelings related to the death of a patient.

Roehrs, Masterson, Alles, Witt, and Rutt (2008) suggested an interdisciplinary approach and the use of critical incident reviews. Similarly, Lemmer, Boyd, and Forrest (1991) support continued actions that value and promote such a team approach to caring for dying infants and their bereaved parents including interdisciplinary care conferences that communicate and clarify information about fetal/infant prognosis, plan of care, parental preferences, and parental coping abilities. Communication between health care professionals and parents facing the death of their infant can be strained partially due to mothers' feelings of ambivalence toward the suffering of their dying infant with some mothers avoiding a relationship believing it contributes more stress than they can manage (Lundqvist, Nilstun, & Dykes, 2002). Change of shift communication and time management with patient assignments require management attention to develop strategies that facilitate and strengthen interprofessional communication.

Nursing Practice

Nurses must caution against making assumptions about what is important in the experience of caring. The evidence (Finfgeld-Connett, 2007; Geller, Psaros, & Kornfield, 2009; Papastavrou, Efstathiou, & Charalambous, 2011) would suggest that as nurses we need to recognize what the patient considers as caring and use this to influence changes in practice, where the goal is to support the patient's needs. Increased awareness and understanding of the synergy between the concepts of caring and patient centered care and how this relates to professional nursing practice is essential. Developing a common understanding of caring using a patient-oriented philosophy (Suhonen et al. 2008)

improves caregiver patient interaction. Nurses have to elicit and use individual patients'

preferences more systematically in care planning in order to plan, implement and

evaluate caring that is not based on assumptions but rather is responsive to every patient's

individualized situation and needs.

Empirical evidence (Finfgeld-Connett, 2007; Geller, Psaros, & Kornfield, 2009;

Papastavrou, Efstathiou, & Charalambous, 2011) has revealed incongruence between

patients' and nurses' perceptions on the importance of nursing behaviors that convey

caring. This indicates that nursing staff may not accurately assess patients' perceptions of

caring and that patient care is not congruent with patients' preferences, expectations, or

individual needs (Finfgeld-Connett, 2007; Geller, Psaros, & Kornfield, 2009;

Papastavrou, Efstathiou, & Charalambous, 2011). In the changing world of healthcare, it

is important that the nurses are able to define the parameters of their role and to ensure

that such definitions are aligned with the views of the recipients of care because the

nurse-patient agreement plays a key role in patient satisfaction and consequently patient's

recovery, comfort, health behaviors and compliance (Papastavrou, Efstathiou, &

Charalambous, 2011).

Women communicated preference for care that demonstrated an empathic

awareness of their feelings as perceived in the behaviors, attitudes, and overall

helpfulness of the staff involved in their treatment (Geller, Psaros, & Kornfield, 2010;

Tsartsara & Johnson, 2002). By emphasizing care of the woman and her life experiences,

conversing with her about her previous loss, and providing nonjudgmental care, nurses

were seen as conveying caring behaviors. Research by Davies (2004) shows that parents

need to talk about the meaning and influence their late child continues to exert upon their

ongoing life. Nurses who accept these concepts and put into practice therapeutic

interventions are viewed as supportive and caring. Likewise, putting parents in contact

with others who have suffered the same loss may be another supportive intervention

(Davies, 2004). Bereavement programs should include protocols to discretely

communicate news of perinatal loss to those interacting with the patient and family

during the hospital stay but also to outpatient providers who will care for the family in the

future. Sharing of this information in a distinct manner through use of symbols or

pictures or color-coded tags allow all staff to become aware of the event to act and

respond in an appropriate manner.

Creating an environment conducive to the enactment of caring is important to the

patient experience. Study findings from Lemmer, Boyd, and Forrest (1991) suggest that

efforts of nurses should be directed toward encouraging and providing opportunities for

parents to nurture their dying infant by facilitating memory creation, providing parents

with information to better understand their baby's illness and care, and allowing

participation of the extended family members in the life and death of the baby.

The strong desire for information plays a vital role in mediating uncertainty and

relieving anxiety (Armstrong, 2002; Cote-Arsenault & Morrison-Beedy, 2001). The

provision of information to women following a pregnancy loss is a vital aspect of care as

well as to the subsequent satisfaction with that care, particularly if the information is

related to the etiology of the loss, future pregnancies, and issues around post-discharge

care (Geller, Psaros, & Kornfield, 2010). Findings by Clauss (2009) suggest that the

content of the information provided about the etiology of the loss along with one's sense

of control over future outcomes may mediate the relationship between loss and avoidance

symptoms. Similarly, Nikcevic and colleagues (2007) found significantly lower levels of anxiety and self-blame over time among women provided information when an identifiable cause of loss was known versus those with an unknown cause.

The follow-up process after a loss affects the experience of pregnancy following that loss, thus underlining the necessity to give support to women not only to help them cope with the loss, but also to support her concerns with the next pregnancy. These interventions must not only take into account the experience of the present pregnancy, but also grief, its development, the significance of the loss and its place in the maternal history in addition to its involvement in the instituting of an emotional link with the subsequent child (Geller, Psaros, & Kornfield, 2010; Roehrs, Masterson, Alles, Witt, & Rutt, 2008). These findings seem to underscore the importance of sending patients home with written information to supplement the verbal information provided proximate to the loss. Providing information and explanations about the etiology of loss may be important in moderating psychological outcomes in addition to determining satisfaction with care.

An implication to hospital leaders is to monitor patient-perceived nurse caring because of its demonstrated relationship with patient satisfaction with nursing care, a key predictor of patient satisfaction with hospital care (Larrabee et al., 2004). Additionally, for nurses to give optimal care they need to experience caring peer support, ongoing education, mentoring and role modelling with the care, and effective coping strategies to deal in a healthy way with the stress of providing care for these vulnerable patients (Roehrs, Masterson, Alles, Witt, & Rutt, 2008).

Future Nursing Research

This study adds to the growing body of knowledge describing women's experience of

pregnancy following prior perinatal loss. The study findings substantiate the significant influence that nurse caring behaviors during a perinatal loss event have on alleviating anxiety once a new pregnancy is achieved ($p = .008$). There is a critical need to move forward into interventional research because there is a scarcity of research that relates nursing behaviors to patient outcomes. As previously mentioned, past studies have focused on the benefits of certain interventions like nursing assessment and diagnosis (Muller-Staub et al. 2006), patient education (Johansson et al. 2005), preventative interventions or caring approaches like individualized care (Suhonen et al. 2007). More studies exploring caring behaviors focused on outcomes in terms of patient satisfaction (Wolf et al. 1998, 2003; Larrabee et al., 2004; Green & Davis, 2005; Wu et al. 2006; Raffii et al., 2008) and showed correlations between caring behaviors and general satisfaction of patients from caring.

Caring presents itself as a nebulous concept in nursing and over the years has triggered intense and constant efforts to capture its meaning and more specifically its meaning as manifested in the nursing profession (Sherwood, 1997; Smith, 1999; Boykin & Schoenhofer, 2001; Brilowski & Wendler, 2005; Finfgeld-Connett 2008). Brilowski and Wendler (2005) conducted a concept analysis of caring to increase understanding and to identify its implications for research and practice within the discipline of nursing. Their findings identified the core attributes of caring to include relationship, action, attitude, acceptance, and variability. For caring to occur, the antecedent factors of trust, rapport, understanding of self and other, and commitment must be present (Brilowski & Wendler, 2005). As a consequence of caring, there is an increased ability to heal for patients and an increased sense of personal and professional satisfaction for nurses

(Brilowski & Wendler, 2005). Wolf et al. (1994) noted it is through the practice of caring behaviors, including acts, conduct, and mannerisms that nurses convey caring and the feeling of being cared for. Understanding the concept of caring allows nurses to determine appropriate research questions, develop theory, and identify practice priorities during a time of dynamic change, increasing demands, and constrained resources within today's healthcare environment .

Future research efforts might include a cross-sectional, two-group comparative study to evaluate the association of nurse caring behaviors during a pregnancy loss with the levels of anxiety and prenatal attachment in a subsequent pregnancy from both the mothers' and perinatal nurses' viewpoints. The findings could provide critical information for nurses on specific actions and interventions that are perceived as helpful and meaningful to patients versus what was intended as caring by nurses.

There is a dearth of evidence surrounding interventions associated with nursing practice and perinatal loss. Future interventional research needs to focus on specificity of interventions perceived by patients as caring nurse behaviors because existing research has not successfully operationalized these specific behaviors that constitute caring. For example, hospital perinatal bereavement programs incorporate a variety of interventions but few have been randomly or even systematically tested for efficacy. Many programs use techniques that are widely accepted as helpful, but lack rigorous and systematic evaluation. Future research in this area should focus on high-quality prospective observational or randomized, controlled trials of care for patients to determine how such interventions affect patient outcomes and discern what aspects of post-loss support

services or bereavement programs are helpful to patients and are targeted interventions that meet their needs.

Another area for future research includes development and testing of interventions to decrease anxiety for women in subsequent pregnancies after loss. Given that depression and anxiety amongst pregnant women who have experienced loss is greater than those who have not (Armstrong, 2002; Côté-Arsenault, & Marshall, 2000; Franche & Mikail, 1999; Hughes, Turton, & Evans,1999; Klier, et al., 2002; Gellar, et al., 2004; Theut, Pederson, Zaslow, & Rabinovich, 1988), further research may yield valuable information in delineating how much of a relationship exists between satisfaction with perception of care and subsequent grief or psychopathology. Future research in this area might focus on whether there are commonalities among women who experience dissatisfaction with healthcare after a loss. If it is established that there are certain characteristics that may predict dissatisfaction, this could establish a point of intervention to ensure that appropriate measures are put into place for follow up care inclusive of psychological referrals as necessary. The current findings support the need to better address and alleviate women's anxiety and concern in pregnancies after perinatal loss.

Future research with replication studies should consider inclusion of under-represented subjects such as women of color and/or other cultures, women not in partnered relationships would allow the evaluation of support in mediating anxiety during pregnancy; adolescents, women who have gone through unsuccessful infertility treatments; women whose loss or current pregnancy involves a fetus with a congenital fetal anomaly; and women with unintended or unwanted pregnancies; as well as men. Researchers have not yet studied whether parental responses during a pregnancy

subsequent to a pregnancy loss before 12 weeks gestation are different from a loss after 24 weeks gestation.

Research design, recruitment strategies, and assessment measures all must be carefully considered to increase the possibility of making definitive statements regarding reproductive loss and subsequent pregnancies. As prospective samples are not a practical option with this population, the design of studies is a particularly important consideration as it will greatly impact the ability to explain the exact nature of this relationship. Collecting data as close to the loss event as possible and conducting follow-up assessments would allow researchers to control for confounding variables such as time elapsed since loss to prevent retrospective report biases. Although each interventional research design offers its own contribution to the increase of nurses' understanding on caring, methods that will allow us to describe and quantify nursing's unique contribution to healthcare and link caring with patients' outcomes and procedures that stand the scientific scrutiny need to be developed further.

Conclusions

The significant findings of the present study ($p = .008$) substantially demonstrate that when pregnant women perceived caring behaviors by her nurse during her previous perinatal loss, she experienced an improvement in her health outcome with decreased anxiety in her current pregnancy. A women's perinatal loss experience extends past the actual loss of her baby with lasting effects on her subsequent pregnancies. Perinatal loss has no boundaries, affecting mothers of all socio-economic groups, all demographic groups, and all age groups (Robinson, Baker, & Nackerud, 1999). There is no prescribed ending point for perinatal bereavement suggesting that nurse caring behaviors in

122

providing bereavement support has potentially enduring influence during pregnancy following perinatal loss (Fenstermacher & Hupcey, 2013). These findings should heighten nurses' awareness and deepen their understanding of the mixture of hope and fear expectant women experience during pregnancies following perinatal loss.

Swanson's theory of caring (1991) asserted that caring and healing are rooted in a deep valuing of what it means to be a person and a commitment to honor the wholeness of self and others. Caring and healing begins within each individual and becomes manifest in the way we relate to our patients, their families, and our colleagues. The most critical aspect of caring for women who have had a prior pregnancy loss is to remember that each mother is different, meaning that nurses should evaluate the needs of each patient individually (DeBackere, Hill, & Kavanaugh, 2008). Additional qualitative research is warranted to discover and describe the variations in the unique experience of perinatal loss across age groups, races, and cultures to develop nursing interventions that convey caring to women who are pregnant following loss.

In summary, the significant findings of the present study ($p =.008$) provided empirical support for the theoretical study model (Figure 1) concepts of nurse caring behaviors and maternal demographic variables which work together to promote patient well-being outcomes, pregnancy specific anxiety and maternal-fetal attachment. This research uniquely contributed to linking nurse caring behaviors to improved patient well-being outcomes in pregnant women following a previous loss. It provokes thoughtfulness and insight regarding pregnant women's unique experiences following perinatal loss to further investigate specific nursing behaviors that convey caring to improve patient outcomes in nursing practice and research.

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APPENDICES

APPENDIX A

IRB INSTITUTIONAL APPROVALS

Volsch IRB review
Halstead, Linda (LLU) [lhalstead@llu.edu]
Sent:Tuesday, June 02, 2015 1:40 PM
To: Bossert, Elizabeth (LLU) [bbossert@llu.edu]
Cc: Joyce Volsch
Re: Volsch *"Effects of nurse caring behaviors on mother's anxiety and attachment in pregnancy following perinatal loss."*

To whom it may concern:

This communication will confirm that the study referenced above met Loma Linda University IRB's policy for deferral of IRB oversight to Memorialcare Health System IRB since subjects were being recruited at Miller Children's Hospital Long Beach. This deferral is identified in our IRB records under IRB#5130412 (PI: Elizabeth Bossert).

Feel free to contact me if there is a question about this.

Linda

Linda G. Halstead, MA—*Director of Research Protection Programs*

Administrator, Institutional Review Board

LOMA LINDA UNIVERSITY | Office of the Vice President of Research Affairs

24887 Taylor Street, Ste 202, Loma Linda, California 92350

(909) 558-4531 · *extension* 43570 · *fax* (909) 558-0131 · email: lhalstead@llu.edu

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MemorialCare
HEALTH SYSTEM
Excellence in Health Care

MEMORIALCARE HEALTH SYSTEM INSTITUTIONAL REVIEW BOARD
APPROVAL LETTER
Expedited Review

P.I.: Joyce Volsch, RN, PhD(c), MS   Date: December 16, 2013
      Administration
      Miller Children's Hospital, Long Beach

Project # and Title: #290-13 - Effects of Nurse Caring Behaviors on Mothers' Anxiety and
                     Attachment in Pregnancy Following Perinatal Loss

Initial Approval Date: December 11, 2013   Expiration Date: December 10, 2014

The above project was reviewed and approved to enroll 60 subjects through the expedited review process by an appointed member of the MHS Institutional Review Board, acting on behalf of the IRB. This approval is for a period of 1 year and your research activity may begin upon receipt of this notification. This action will be presented to the next meeting of the MHS Institutional Review Board for informational purposes. The MHS Institutional Review Board serves as the IRB for the MemorialCare Health System.

The following items were included the review and approval:

1. Protocol, inclusive of Appendices B - F
2. Informed Consents (Print, Survey Monkey)
3. Authorization for the Use and Disclosure of Protected Health Information
4. Waiver of Authorization for the Use and Disclosure of Protected Health Information
5. Recruitment materials

Enclosed please find an official stamped copy of the Informed Consents, Authorization for the Use and Disclosure of Protected Health Information and recruitment materials; and an approved Waiver of Authorization for the Use and Disclosure of Protected Health Information for the above named project. The MHS Institutional Review Board deemed the use of a short form consent documentation not appropriate.

Please review MHS policy #304 regarding translation of the approved English consent form. If non-English speaking subjects are to be considered, the consent form must be available in translation before such subjects are approached for enrollment.

- In compliance with FDA regulations and MHS Institutional Review Board policies, a detailed progress report must be submitted to the MemorialCare Research office before **September 30, 2013**

Office of Research Administration · Van Camp Center · 2625 Pasadena Avenue · Long Beach, CA
Mailing Address: 2801 Atlantic Avenue · Long Beach, CA 90806 · Phone/Fax: (562) 933-9574 · (562) 933-5611 · memorialcare.org

146

The MHS Institutional Review Board is duly constituted (fulfilling FDA requirements for diversity), has written procedures for initial and continuing review of clinical trials: prepares written minutes of convened meetings, and retains records pertaining to the review and approval process; all in compliance with requirements defined in 21 CFR Parts 50, 56, 312 (Code of Federal Regulations) and ICH (International Conference of Harmonization) guidance relating to GCPs (Good Clinical Practice).

MHS Institutional Review Board approvals are provided to Principal Investigators subject to the following conditions:

Per ICH guidelines, the MHS Institutional Review Board regards the Principal Investigator as responsible for the conduct of research trials at his/her site and all associated research facilities. Specific responsibilities of the Principal Investigator include ensuring:

- Supervision of all research at the MemorialCare Health System in accordance with MHS policies and FDA regulations.
- Conduct of research according the study protocol.
- Use of the most recently approved informed consent form.
- Provision of an MHS Institutional Review Board- approved consent form in the subject's first language to all non-English speaking subjects.
- Approval by the MHS Institutional Review Board for all changes in research activity including protocol amendments and/or consent form revisions prior to implementation.
- Prompt reporting (48 hours verbally and 5-10 days in writing) to the MHS Institutional Review Board of any significant changes in research activity including changes in Principal Investigator, changes in research site, addition of research facilities to a previously approved site, and study completion.
- Approval by the MHS Institutional Review Board of all advertisements and patient recruiting materials prior to use.
- Prompt reporting (48 hours verbally and 5-10 days in writing) to the MHS Institutional Review Board of serious and unexpected events related to study procedures as well as protocol deviations.
- Timely submission of continuing review and progress reports.

Sincerely,

Edward Quilligan, MD
Chair, Institutional Review Board
MemorialCare Health System

Approval letters/290-13 initial approval 12-11-13

MEMORIALCARE HEALTH SYSTEM INSTITUTIONAL REVIEW BOARD
APPROVAL LETTER
Expedited Review

P.I.: Joyce Volsch, RN, PhD (c)   Date: March 20, 2014
        Administration
        Miller Children's Hospital, Long Beach

Project # and Title: #290-13 - Effects of Nurse Caring Behaviors on Mothers' Anxiety and
                Attachment in Pregnancy Following Perinatal Loss

Amendment Approval Date: March 18, 2014

Your request dated March 4, 2014 for an amendment to the above project was reviewed
and approved through the expedited review process by an appointed member of the
MHS Institutional Review Board, acting on behalf of the IRB.   This action will be
presented to the MHS Institutional Review Board for informational purposes. The MHS
Institutional Review Board serves as the IRB for the MemorialCare Health System.
Enclosed please find an official stamped copy of the Informed Consents (Main and
Survey) and Authorization for the Use and Disclosure of Protected Health Information;
and an approved Waiver of Authorization for the Use and Disclosure of Protected Health
Information for the above named project.   This includes the review of the documents
attached with your request.

The MHS Institutional Review Board is duly constituted (fulfilling FDA requirements for
diversity), has written procedures for initial and continuing review of clinical trials:
prepares written minutes of convened meetings, and retains records pertaining to the
review and approval process; all in compliance with requirements defined in 21 CFR
Parts 50, 56, 312 (Code of Federal Regulations) and ICH (International Conference of
Harmonization) guidance relating to GCPs (Good Clinical Practice).

Sincerely,

Edward Quilligan, MD
Chair, MHS Institutional Review Board
MemorialCare Health System

Enclosure
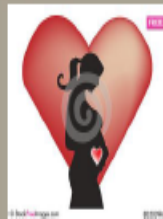approval letters/290-13 amend 3-4-14 app 3-18-14

148

RECRUITMENT INFORMATION FLIER

This document has been approved by the MHS Institutional Review Board.

To be used when making copies.

Approved: 12-11-2013
Expires: 12-10-2014

Valid within the dates indicated above.

Stamp for MCR use only; may not be duplicated

IRB STUDY # 290-13: NURSE CARING BEHAVIORS IN PREGNANCY AFTER LOSS

PARTICIPATING IN THIS STUDY REQUIRES:

♥ Completion of 5 Questionnaires via IPAD or Paper
♥ About 30- 45 minutes to complete
   and
♥ You will receive a Photo Frame and a parking pass or gift card to Jamba Juice

♥ We value your opinions about nursing care.

♥ Getting information directly from you is the best way to understand what is most important to you in the care you receive.

♥ The information you share will be used to educate nurses and healthcare providers to improve care for all women who are pregnant following a previous loss.

Thank you
Joyce Volsch, RN, MS, PhD(c)
Email: jvolsch@memorialcare.org
Telephone: **(562) 519-4297**

YOU ARE ELIGIBLE FOR THIS STUDY IF YOU:

• ARE ≥ 18 YEARS

• HAD A PREVIOUS PREGNANCY THAT ENDED IN LOSS

• ARE CURRENTLY ≥ 4 MONTHS PREGNANT

This is a research study conducted by Joyce Volsch, RN, MS an employee at Miller Children's Hospitals Long Beach and a graduate student at Loma Linda University Graduate School of Nursing.

RECRUITMENT SELF- REFERRAL FLIER

This document has been approved by the MHS Institutional Review Board.

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Approved: 12-11-2013
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IRB# 290-13 NURSING RESEARCH

Caring Behaviors in Pregnancy after Loss

FOR A DISSERTATION STUDY
DOCTORAL CANDIDATE: JOYCE VOLSCH, RN, MS
LOMA LINDA UNIVERSITY, LOMA LINDA, CA
MILLER CHILDREN'S HOSPITAL LONG BEACH, LONG BEACH, CA

You Are Eligible for this Study If You:

- >18 years or older

- Are currently ≥ 4 months pregnant

- Experienced a loss during a previous pregnancy

- Are willing to complete 5 questionnaires that will take about 30 - 45 minutes at a location of your choice

Purpose of the Study:

- To improve care for women who are pregnant following a previous loss, this study aims to better understand how nurses' behaviors may affect women's experiences of caring.

Why is this important?

- Your opinion about nursing care is the opinion we value most.
- Information that comes directly from you is the best way to understand what is most important to you in the care you receive.
- The information you share will be used to educate nurses and healthcare providers to improve care for pregnant women.

If you are interested in participating or have questions

Please contact Joyce Volsch at 562-519-4297 or jvolsch@memorialcare.org

CUT or TEAR Off Here

YES, I would like more information about this nursing research study, "Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Perinatal Loss" and give permission for a member of the research team to contact me:
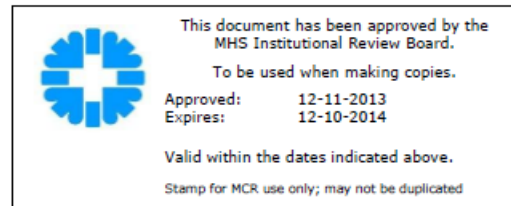
Name: _____   Date: _____

Phone #: _____   Best time to call: _____

Place in designated study DROP BOX

APPENDIX D

RECRUITMENT WEB INFORMATION POSTING

This document has been approved by the
MHS Institutional Review Board.
To be used when making copies.

Approved: 12-11-2013
Expires: 12-10-2014

Valid within the dates indicated above.

Stamp for MCR use only; may not be duplicated

Invitation to Pregnant Women to Participate in a Research Study:

- If your previous pregnancy ended in the death of your baby - we are so sorry.
- We want to better understand women's experiences with their nurses during and after these significant life losses.
- We believe the best way to understand the effects of nurses' interactions with women pregnant after perinatal loss is to get the information directly from women who are living this experience.
- When a woman becomes pregnant again after the death of a baby, it is understandable that she may experience a range of feelings.
- It is our hope that the information you share about your experience will lead to competent and empathetic nursing care for all women who are pregnant again following a perinatal loss.
- Our goal is to use this information to educate nurses and other healthcare providers about women's experience in pregnancy following a baby's death.
- To participate in this research study, you will need to complete five questionnaires that will take about 45 minutes via your choice of an electronic or paper format. Upon completion of the questionnaires, you will be given a small appreciation gift (photo frame and parking pass or $5 gift card to Jamba Juice)

If you are interested or have questions, please contact Joyce Volsch at jvolsch@memorialcare.org or (562) 519-4297. Thank you for your consideration.

MHS WAIVER OF AUTHORIZATION

MemorialCare Health System Institutional Review Board

Request for Waiver of Authorization
For the Use and Disclosure of Protected Health
Information in Research

INTRODUCTION

Patients have rights regarding the privacy of their medical information collected prior to and in the course of this research. This medical information, called "protected health information" (PHI), includes demographic information, the results of histories and physical exams, blood tests, x-rays and other diagnostic and medical procedures, as well as individually identifiable tissues or body fluids. Patients must authorize the use of PHI when used or disclosed for all purposes other than treatment, payment and healthcare operations. This includes the use and disclosure of PHI for research. In some cases, it is appropriate to seek a waiver of such authorization, such as for chart reviews and data registries.

REQUEST FOR WAIVER

I, Joyce Volsch, RN, PhD(c), MS request a waiver of authorization for the use and disclosure of protected health information, consequent to a research project entitled, **Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Previous Perinatal Loss**

The waiver of authorization for use and disclosure of PHI is for a period of 4 years after study closure

The specific protected health information (PHI) that will be used and disclosed includes the **medical record number and all elements of dates directly related to the subject.** These include number of pregnancies; expected delivery date, age, medical diagnosis, date of perinatal loss, stage of pregnancy at loss.

The members of the research team at Long Beach Memorial who will be using the described PHI include: Peggy Kalowes RN, PhD, CNS, FAHA, Jennifer McNulty, MD, Sharon Yagerlener.

I further certify the following: {please initial box next to each statement}

Please Initial

The use or disclosure of PHI involves no more than minimal risk to the privacy of individuals, based on the presence of the following elements:

1. An adequate plan to protect the identifiers from improper use and disclosure. **All study materials will be coded with a subject ID number, thus protecting privacy. All study materials will be stored in a locked cabinet only accessible to the researchers.**

2. An adequate plan to destroy the identifiers at the earliest opportunity consistent with conduct of the research, unless there is a specific health or research justification for retaining the identifiers, or such retention is otherwise required by law;

All study materials will be destroyed via secure hospital disposal system, 4 years after study completion.

and

3. The PHI will not be reused or disclosed to any other person or entity, except as required by law, for authorized oversight of the research project, or for other research for which the use or disclosure of PHI may be subsequently permitted.

Please Initial   The research could not practicably be conducted without the waiver; and

Please Initial   The research could not practicably be conducted without access to and use of the PHI.

JOYCE VOLSCH, RN, PhD(c), MS   12/10/13 3:54 pm___
PRINCIPAL INVESTIGATOR NAME   SIGNATURE   DATE & TIME

FOR USE OF THE OFFICE OF RESEARCH ADMINISTRATION ONLY

MHS Institutional Review Board   _December 11, 2013_
Name of Institutional Review Board   Date & Approval of Waiver

Sharon K. Denham   12·23·13 11:26 am
Chair of IRB or Designee   Signature   Date & Time

153

Request for Waiver of Authorization
For the Use and Disclosure of Protected Health
Information in Research

INTRODUCTION

Patients have rights regarding the privacy of their medical information collected prior to and in the course of this research. This medical information, called "protected health information" (PHI), includes demographic information, the results of histories and physical exams, blood tests, x-rays and other diagnostic and medical procedures, as well as individually identifiable tissues or body fluids. Patients must authorize the use of PHI when used or disclosed for all purposes other than treatment, payment and healthcare operations. This includes the use and disclosure of PHI for research. In some cases, it is appropriate to seek a waiver of such authorization, such as for chart reviews and data registries.
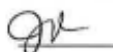
REQUEST FOR WAIVER

I, Joyce Volsch, RN, PhD(c), MS request a waiver of authorization for the use and disclosure of protected health information, consequent to a research project entitled, **Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Previous Perinatal Loss**

The waiver of authorization for use and disclosure of PHI is for a period of 5 years after study closure

The specific protected health information (PHI) that will be used and disclosed includes the **medical record number and all elements of dates directly related to the subject**. These include number of pregnancies; expected delivery date, age, medical diagnosis, date of perinatal loss, stage of pregnancy at loss.

The members of the research team at Long Beach Memorial who will be using the described PHI include: Peggy Kalowes RN, PhD, CNS, FAHA, Jennifer McNulty, MD, Sharon Yagerlener, Annie Pettys, Jessica Nguyen, Janet Trial.

I further certify the following: {please initial box next to each statement}

Please Initial

The use or disclosure of PHI involves no more than minimal risk to the privacy of individuals, based on the presence of the following elements:

1. An adequate plan to protect the identifiers from improper use and disclosure. **All study materials will be coded with a subject ID number, thus protecting privacy. All study materials will be stored in a locked cabinet only accessible to the researchers.**

2. An adequate plan to destroy the identifiers at the earliest opportunity consistent with conduct of the research, unless there is a specific health or research justification for retaining the identifiers, or such retention is otherwise required by law; **All study materials will be destroyed via secure hospital disposal system, 5 years after study completion.**

and

3. The PHI will not be reused or disclosed to any other person or entity, except as required by law, for authorized oversight of the research project, or for other research for which the use or disclosure of PHI may be subsequently permitted.

Please Initial   The research could not practicably be conducted without the waiver; and

Please Initial   The research could not practicably be conducted without access to and use of the PHI.

JOYCE VOLSCH, RN, PhD(c)   _(signature)_   03/18/2014
PRINCIPAL INVESTIGATOR NAME   SIGNATURE   DATE & TIME

FOR USE OF THE OFFICE OF RESEARCH ADMINISTRATION ONLY

MHS Institutional Review Board   March 18 2014
Name of Institutional Review Board   Date & Approval of Waiver

Sharon K Denham   _(signature)_   3-20-14   1:42pm
Chair of IRB or Designee   Signature   Date & Time

APPENDIX F

RECRUITMENT SCREENING /ENROLLMENT TOOL

This document has been approved by the
MHS Institutional Review Board.

To be used when making copies.

Approved: 12-11-2013
Expires: 12-10-2014

Valid within the dates indicated above.

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IRB Study # 290-13: Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Perinatal Loss
Study Screening & Enrollment

Date	MRN#	Study Eligible		OK to Contact		Appt Date	Declined	Enrolled	Study #	Initial
		NO	YES	NO	YES		Date	Date	Assigned	Research Team

APPENDIX G

INFORMED CONSENT: PAPER

MemorialCare Health System Institutional Review Board

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title: Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Previous Perinatal Loss

Principal Investigator: Joyce Volsch, RN, PhD(c), MS   Phone: (562) 519-4297

Sub-Investigators:
Jennifer McNulty, MD   Phone: (562) 997-8510
Peggy Kalowes RN, PhD, CNS, FAHA   Phone: (562) 933-5016
Sharon Yagelener, Chaplain   Phone: (562) 933-1454

MHS Project No: 290-13

Purpose of the Study

You are being asked to participate in a research study being conducted by Joyce Volsch, RN, PhD(c), MS, a doctoral student at Loma Linda University School of Nursing, who is conducting her dissertation research at Miller Children's Hospital Long Beach, perinatal support group, and private obstetrician offices.
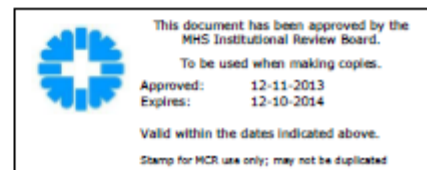
The purpose of this research study is to determine if nurse caring behaviors (NCB) during a pregnancy that ended in the death of the baby affects pregnancy-specific anxiety (PSA) and maternal-fetal attachment (bonding with your infant) in women who become pregnant again. There is a limited amount of research on what women experience as caring behaviors by nurses following the death of their baby and in a pregnancy following this event. You are invited to participate in this research study because you are a pregnant woman who has experienced the death of a baby in a prior pregnancy.

This consent form is intended to describe the research study and your responsibilities as a research participant as well as the risks and benefits of participation.

Description of the Procedures
We hope to recruit about 60 study participants from Miller Children's Hospital Long Beach perinatal support group, fetal diagnostic center, and private obstetrician offices.

Taking part in this research study is entirely voluntary. You may decide not to participate, or if you decide to participate you may withdraw from the study at any time, without consequences of any kind. Participation or non-participation will not affect the care that you receive from your physician or Miller Children's Hospital Long Beach. If

you decide to withdraw from the study, you are asked to contact the researcher and inform her of your decision. If at any time the researcher feels that further participation in this study is not in your best interest, he or she may withdraw you from the study.

Physical Requirements
If you agree to participate in this study, you will be asked to complete five questionnaires that may take up to 40 minutes of your time. The questionnaires include:

- A demographic form and two optional open-ended questions
- 24-item nurse caring behavior inventory,
- 10-item general anxiety survey,
- 9-item pregnancy-specific anxiety visual scale,
- 19-item maternal-fetal attachment survey.

You will need to be able to sit for a period of time and use a pen/pencil or an electronic device (ipad) to complete the study questionnaires. You may take breaks as needed, while completing the questionnaires.

Duration of the Study
All surveys will be assigned study numbers without personal identifiers, stored on a secure and encrypted server. It is anticipated that it may take up to 1 year to complete this study, and de-identified data (no names or personal data) will be maintained for 5 years after the close of the study for potential further research purposes conducted by this study only.
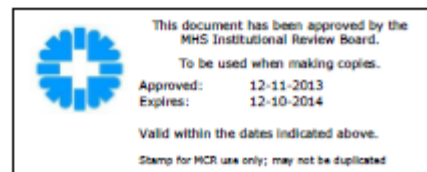
Reimbursement
Upon completion of the 5 questionnaires in this study, you will receive a picture frame and your choice of a Long Beach Memorial / Miller Children's Hospital parking pass or a Jamba Juice gift card ($5 value) for your participation in this study.

Risks/Side Effects
There are minimal risks to you for participating in this study. Sometimes, individuals may feel sad or distressed when they remember or talk about their experiences. If at any time during the study you find that you do not wish to participate you may refuse to continue. A referral will be offered and made available to the perinatal chaplain, perinatal social worker, or maternal anxiety and mood disorder center at Community Hospital Long Beach, whichever is most convenient for you.

Potential Benefits
Although you will not benefit personally from this study, your participation will help nurses and other health care professionals know how to better serve women and their families with your unique needs.

Alternatives

Your participation in this study is voluntary. You may choose to not participate. Your medical treatment is unrelated to this study. You have been given the opportunity to ask questions which have been answered to your satisfaction.

Costs and Payments

You or your third party payer (health insurance, Medicare, Medi-Cal or other) must provide payment for hospital, office and other medical costs which are unrelated to this study. There are no additional costs to you for participating in this study. You will receive no financial gain for your participation in this study.

Voluntary Participation/ Right to Withdrawal

Your participation in this study is voluntary. You may decide not to participate or you may withdraw from the study at any time, without penalty or loss of benefits in your medical care to which you might otherwise be entitled. If you do decide to leave the study, you are asked to contact the principal investigator and inform her of your decision.

Confidentiality

Any information about you obtained from this research will be kept confidential and your name will never be identified in any report or publication unless you sign a release. Information regarding your medical records, just like hospital records, may be subpoenaed by court order. You consent to the publication of study results so long as the information is anonymous and/or disguised so that identification cannot be made. Authorized representatives of the Office of Human Research Protections (OHRP), and the MHS Institutional Review Board (IRB) may examine your medical records, and there will be no breach of confidentiality.

IRB-FDA Clause

This proposal has been reviewed and approved by the MHS Institutional Review Board (IRB) for MemorialCare Health System; this board is composed of physicians and lay persons. If you have any questions about your rights as a research subject, or regarding a treatment related injury, or desire further information concerning the availability of compensation or medical treatment, you may contact MemorialCare Research at (562) 933-5600.

Joyce Volsch and/or one of his/her sub-investigators have discussed this study with you. If you have any questions you can reach them at (562) 519-4297.

****

I certify that I have read the preceding or it has been read to me, that I have reviewed its contents, and that any question I have pertaining to the preceding have been, or will be answered by my doctor and that my permission is freely given. I have been given a signed copy of this consent form along with a copy of the "*Rights of Human Subjects in Medical Research*," and I consent to participate in this study.

_____
Printed Name of Subject

_____   _____   _____
Subject's Signature   Date   Time
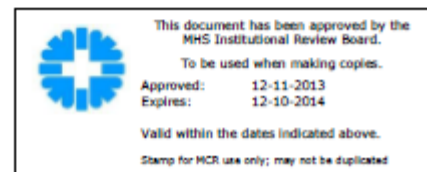
Certificate of Person Obtaining Consent

I have provided an explanation of the above research study and encouraged the subject to ask questions and request additional information regarding the study, its risks and complications and possible alternatives. A copy of this consent form has been given to the subject.

_____   _____   _____
Signature of Person   Printed Name of Person   Date
Obtaining Consent   Obtaining Consent
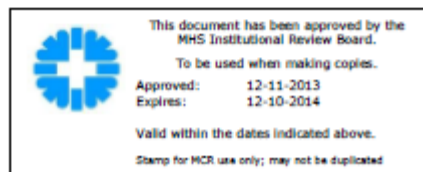
NOT VALID WITHOUT IRB STAMP OF APPROVAL

RIGHTS OF HUMAN SUBJECTS IN
MEDICAL RESEARCH

Any person who is requested to consent to participate as a subject involving a medical experiment or who is requested to consent on behalf of another has the right to:

1. Be informed of the nature and purpose of the experiment.

2. Be given an explanation of the procedures to be followed in the medical experiment, and any drug or device to be utilized.

3. Be given a description of any attendant discomforts and risks reasonably to be expected from the experiment.

4. Be given an explanation of any benefits to the subjects reasonably to be expected from the experiment.

5. Be given a disclosure of any appropriate alternative procedures, drugs or devices that might be advantages to the subject, and their relative risks and benefits.

6. Be informed of the avenues of medical treatment, if any, available to the subject after the experiment if complications should arise.

7. Be given an opportunity to ask any questions concerning the experiment of the procedure involved.

8. Be instructed that consent to participate in the medical experiment may be withdrawn at any time and the subject may discontinue participation in the medical experiment without prejudice.

9. Be given a copy of any signed and dated written consent form used in relation to the experiment.

10. Be given the opportunity to decide to consent or not to consent to a medical experiment without the intervention of any element of force, fraud, deceit, duress, coercion or undue influences on the subject's decision.

SUBJECT'S SIGNATURE: _____ DATE: _____

SUBJECT'S INITIALS _____

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title: Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following Previous Perinatal Loss

Principal Investigator:	Joyce Volsch, RN, PhD(c), MS	Phone: (562) 519-4297
Sub-Investigators:	Jennifer McNulty, MD	Phone: (562) 997-8510
	Peggy Kalowes RN, PhD, CNS, FAHA	Phone: (562) 933-5016
	Janet Trial, EdD, MSN, CNM	Phone: (562) 933-0612
Other Study Personnel:	Sharon Yagelener, Chaplain	Phone: (562) 933-1454
	Annie Pettys, RN, MSN, NP	Phone: (562) 933-8001
	Jessica Nguyen, MPH	Phone: (562) 933-2414

MHS Project No: 290-13

Purpose of the Study

You are being asked to participate in a research study being conducted by Joyce Volsch, RN, PhD(c), MS, a doctoral student at Loma Linda University School of Nursing, who is conducting her dissertation research at Miller Children's Hospital Long Beach, perinatal support group, and private obstetrician offices.
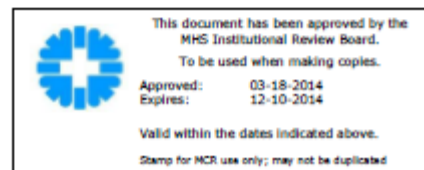
The purpose of this research study is to determine if nurse caring behaviors (NCB) during a pregnancy that ended in the death of the baby affects pregnancy-specific anxiety (PSA) and maternal-fetal attachment (bonding with your infant) in women who become pregnant again. There is a limited amount of research on what women experience as caring behaviors by nurses following the death of their baby and in a pregnancy following this event. You are invited to participate in this research study because you are a pregnant woman who has experienced the death of a baby in a prior pregnancy.

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Description of the Procedures

We hope to recruit about 60 study participants from Miller Children's Hospital Long Beach perinatal support group, fetal diagnostic center, and private obstetrician offices.

Taking part in this research study is entirely voluntary. You may decide not to participate, or if you decide to participate you may withdraw from the study at any time, without consequences of any kind. Participation or non-participation will not affect the care that

you receive from your physician or Miller Children's Hospital Long Beach. If you decide to withdraw from the study, you are asked to contact the researcher and inform her of your decision. If at any time the researcher feels that further participation in this study is not in your best interest, he or she may withdraw you from the study.

Physical Requirements
If you agree to participate in this study, you will be asked to complete five questionnaires that may take up to 40 minutes of your time. The questionnaires include:

- A demographic form and two optional open-ended questions
- 24-item nurse caring behavior inventory,
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You will need to be able to sit for a period of time and use a pen/pencil or an electronic device (ipad) to complete the study questionnaires. You may take breaks as needed, while completing the questionnaires.

Duration of the Study
All surveys will be assigned study numbers without personal identifiers, stored on a secure and encrypted server. It is anticipated that it may take up to 1 year to complete this study, and de-identified data (no names or personal data) will be maintained for 5 years after the close of the study for potential further research purposes conducted by this study only.
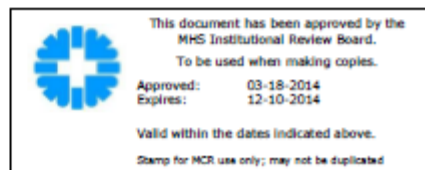
Reimbursement
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Risks/Side Effects
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Potential Benefits
Although you will not benefit personally from this study, your participation will help nurses and other health care professionals know how to better serve women and their families with your unique needs.

This document has been approved by the MHS Institutional Review Board.
To be used when making copies.

Approved: 03-18-2014
Expires: 12-10-2014

Valid within the dates indicated above.

Stamp for MCR use only; may not be duplicated

163

Alternatives

Your participation in this study is voluntary. You may choose to not participate. Your medical treatment is unrelated to this study. You have been given the opportunity to ask questions which have been answered to your satisfaction.

Costs and Payments

You or your third party payer (health insurance, Medicare, Medi-Cal or other) must provide payment for hospital, office and other medical costs which are unrelated to this study. There are no additional costs to you for participating in this study. You will receive no financial gain for your participation in this study.

Voluntary Participation/ Right to Withdrawal

Your participation in this study is voluntary. You may decide not to participate or you may withdraw from the study at any time, without penalty or loss of benefits in your medical care to which you might otherwise be entitled. If you do decide to leave the study, you are asked to contact the principal investigator and inform her of your decision.
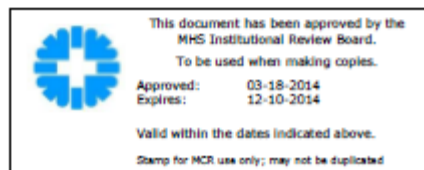
Confidentiality

Any information about you obtained from this research will be kept confidential and your name will never be identified in any report or publication unless you sign a release. Information regarding your medical records, just like hospital records, may be subpoenaed by court order. You consent to the publication of study results so long as the information is anonymous and/or disguised so that identification cannot be made. Authorized representatives of the Office of Human Research Protections (OHRP), and the MHS Institutional Review Board (IRB) may examine your medical records, and there will be no breach of confidentiality.

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_____
Printed Name of Subject

_____   _____   _____
Subject's Signature   Date   Time
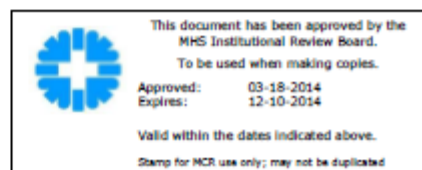

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_____   _____   _____
Signature of Person   Printed Name of Person   Date
Obtaining Consent   Obtaining Consent

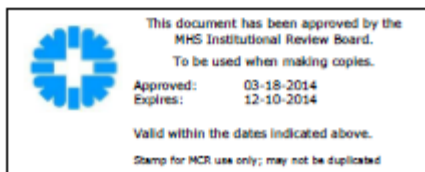<center>**NOT VALID WITHOUT IRB STAMP OF APPROVAL**</center>

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SUBJECT'S SIGNATURE: _____ DATE: _____

SUBJECT'S INITIALS _____

166

APPENDIX H

INFORMED CONSENT: SURVEYMONKEY

MemorialCare Health System Institutional Review Board

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Dear Patient:

You have reached the web page for a MHS Institutional Review Board (IRB) approved nursing research study (#290-13) called the "Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following a Previous Perinatal Loss". I understand that because I am a pregnant woman who has previously experienced the death of a baby in a pregnancy, I am eligible for participation in this research study. We are recruiting around 60 patients for study participation.

The purpose of this study is to determine if nurse caring behaviors (NCB) during a pregnancy that ended in the death of the baby affects pregnancy-specific anxiety (PSA) and maternal-fetal attachment (MFA) in women who become pregnant again. There is a limited amount of research on what women experience as caring behaviors by nurses following the death of their baby and in a pregnancy following this event.
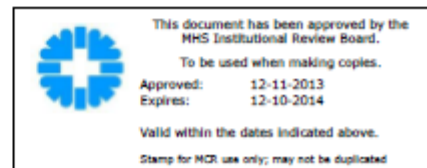
My voluntary participation in this study includes completion of 5 online surveys (e.g. SurveyMonkey questionnaires):
- Demographic form and two optional open-ended questions
- 24-item nurse caring behavior inventory,
- 10-item general anxiety survey,
- 9-item pregnancy-specific anxiety visual scale,
- 19-item maternal-fetal attachment survey.

I understand my voluntary study participation, refusal for participation, or decision to discontinue study participation at any time will have no effect on my medical treatment. My survey responses will contain no questions or responses containing directly identifiable data. All of the information that I voluntarily provide will remain confidential to the degree permitted by the technology used.

SurveyMonkey is a commercial software company that utilizes some of the most advanced technology for internet security available today. They display the most recognized online trust seals, including Norton (formerly VeriSign), TRUSTe, McAfee, to keep your data private, safe and secure. Survey Monkey provides excellent research services to the online community. A critical component to their success is the security of the researchers' data. Systems are specifically designed to meet and exceed industry standards for internet security as well as IRB standards to help protect research participants.

The servers as well as the database and web presence, employ numerous forms of enterprise level security features to reach those goals, which includes a firewall that restricts access to all ports except 80 (http) and 443 (https). Additionally, an intrusion detection system and other systems detect and prevent tracing of the IP address and interference or access from outside

intruders to stored data. However, we cannot guarantee total privacy, thus there is a remote possibility that an unauthorized person might be able to see your personal information.

In addition to the vendor security strategies, the research team has also put multiple safeguards in place to keep your responses private. We have purchased an encrypted version of the SurveyMonkey product to reduce the risk to subjects that their responses will be viewed by unauthorized persons. The information you provide will be stored on a MHS secure computer network with encryption and password protection only accessible by key personnel and the principal investigator.

Reimbursement
Upon completion of the 5 questionnaires in this study, you will receive a picture frame and your choice of a Long Beach Memorial / Miller Children's Hospital parking pass or a Jamba Juice gift card ($5 value) for your participation in this study.

Finally, all future publications and/or presentations that result from this study will be reported as aggregate (group) data, thus it will not include any personal information about you. Data will be maintained 5 years after study closure for the potential further research purposes conducted by this study only.

By selecting the "Accept" button below, I confirm:
1. I have read the first page of this survey questionnaire titled "Effects of Nurse Caring Behaviors on Mothers' Anxiety and Attachment in Pregnancy Following a Previous Perinatal Loss".
2. I agree to participate in this study, and give my permission to allow the investigator to use my information for research purposes.

Any questions I have can be answered by the investigator(s), Joyce Volsch, RN, PhD(c), MS at (562) 519-4297, jvolsch@memorialcare.org and Peggy Kalowes, RN, PhD, CNS, FAHA at (562) 933-5016, pkalowes@memorialcare.org. I can access other resources to have my questions answered by calling MemorialCare Research (human subjects protection office) at (562) 933-5600. This study has been approved by the MemorialCare Health System Institutional Review Board (IRB), Study #290-13.

Thank you for your participation in this study.

Joyce Volsch, RN, PhD(c), MS
Principal Investigator
Vice President Patient Care Services
Miller Children's Hospital Long Beach

Peggy Kalowes, RN, PhD, CNS, FAHA
Regulatory Contact
Director, Nursing Research and Evidence Based Practice
MemorialCare Health System

MemorialCare Health System Institutional Review Board

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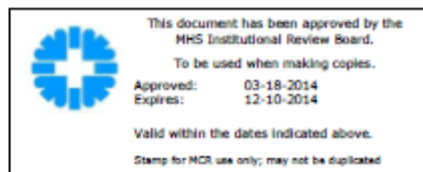
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In addition to the vendor security strategies, the research team has also put multiple safeguards in place to keep your responses private. We have purchased an encrypted version of the SurveyMonkey product to reduce the risk to subjects that their responses will be viewed by unauthorized persons. The information you provide will be stored on a MHS secure computer network with encryption and password protection only accessible by key personnel and the principal investigator.

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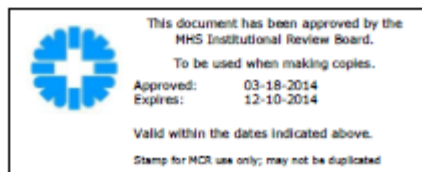By selecting the "Accept" button below, I confirm:
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Thank you for your participation in this study.

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Principal Investigator
Vice President Patient Care Services
Miller Children's Hospital Long Beach

Peggy Kalowes, RN, PhD, CNS, FAHA
Regulatory Contact
Director, Nursing Research and Evidence Based Practice
MemorialCare Health System

LETTERS OF COMMITMENT – PSYCHIATRY & CHAPLAIN SERVICES

June 3, 2013

Elizabeth Bossert, DNS, RN
Associate Dean
Loma Linda University Graduate School of Nursing
Loma Linda, CA 92354

RE: Letter of support for student research project by Joyce Volsch

Dear Dr. Bossert:

As the Administrator at Community Hospital Long Beach (CHLB), I am pleased to extend support to Joyce Volsch and her student research study on Maternal-Fetal/Infant Attachment in Pregnancy Following Perinatal Loss. As part of the Memorial HealthCare system, CHLB offers a specialized program in Perinatal Mood and Anxiety Disorders (PMAD). We agree to post and distribute research participation information on our website and in our PMAD department about Ms. Volsch's research for interested potential participants. Additionally, we agree to provide support to pregnant women referred to us by Ms. Volsch who express a desire to speak to a therapist following their research study participation.

We believe findings from Ms. Volsch's research project will help us to better understand our patients' experience so that we can improve the services we provide. We look forward to hearing about Ms. Volsch's research findings.

Sincerely,

_____

Krikor Jansezian, PhD
Administrator

June 3, 2013
Elizabeth Bossert, DNS, RN
Associate Dean
Loma Linda University Graduate School of Nursing
Loma Linda, CA 92354

RE: Letter of support for student research project by Joyce Volsch

Dear Dr. Bossert:

As the Director of Spiritual Care and Chaplaincy at Long Beach memorial and Miller Children's Hospital Long Beach, I am pleased to extend support to Joyce Volsch and her student research study on Maternal-Fetal/Infant Attachment in Pregnancy Following Perinatal Loss. Chaplain Sharon Yagerleiner is the Coordinators for the Perinatal Bereavement Program here at Miller Children's Hospital Long Beach and is the support group facilitator. We agree to post and distribute research participation information on our perinatal support group website and in our support group registration desk about Ms. Volsch's research for interested visitors. Additionally, we agree to provide support to pregnant women referred to us by Ms. Volsch who express a request to speak to a chaplain following their research study participation.
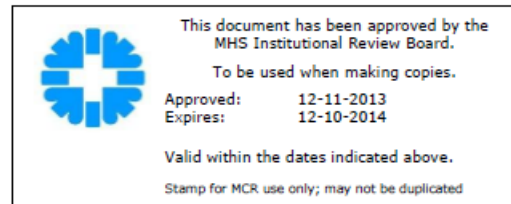
We believe findings from Ms. Volsch's research project will help us to better understand our patients' experience so that we can improve the services we provide. We look forward to hearing about Ms. Volsch's research findings.

Sincerely,

_____
Reverend Sheryl Faulk
Director Spiritual Care and Chaplaincy
Long Beach Memorial and Miller Children's Hospital Long Beach
2801 Atlantic Avenue
Long Beach, CA 90806

APPENDIX J

RECRUITMENT TELEPHONE SCRIPT

Hello. My name is Joyce Volsch. I am a nurse researcher at Miller Children's Hospital Long Beach and a doctoral nursing student at Loma Linda University School of Nursing. I am interested in talking with you about your experiences with nurses during this pregnancy and during your previous pregnancy when you experienced the death of your baby. This study is about how nursing care might affect women's anxiety when they become pregnant after a losing a baby and mother-baby bonding during the current pregnancy. In this study, I will ask you to complete five questionnaires in paper or electronic form that will take about 30 – 45 minutes to complete. I am happy to meet you at your home, at your next doctor's appointment, or at any location of your choosing that is most convenient for you. Would you be interested in participating in this study?"

APPENDIX K

MEASUREMENT: NURSE CARING BEHAVIORS

CARING BEHAVIORS INVENTORY (CBI-24)

Directions

Please read the list of items that describes nurse caring. For each item, please *circle* the answer that stands for the extent that a nurse or nurses made caring visible during your last hospitalization.

Remember, *you* are the patient.

1. Attentively listening to the patient.

| never | almost never | occasionally | usually | almost always | always |

2. Giving instructions or teaching the patient.

| never | almost never | occasionally | usually | almost always | always |

3. Treating the patient as an individual.

| never | almost never | occasionally | usually | almost always | always |

4. Spending time with the patient.

| never | almost never | occasionally | usually | almost always | always |

5. Supporting the patient.

| never | almost never | occasionally | usually | almost always | always |

6. Being empathetic or identifying with the patient.

| never | almost never | occasionally | usually | almost always | always |

7. Helping the patient grow.

| never | almost never | occasionally | usually | almost always | always |

8. Being patient or tireless with the patient.

| never | almost never | occasionally | usually | almost always | always |

9. Knowing how to give shots, IVs, etc.

| never | almost never | occasionally | usually | almost always | always |

10. Being confident with the patient.

| never | almost never | occasionally | usually | almost always | always |

11. Demonstrating professional knowledge and skill.

| never | almost never | occasionally | usually | almost always | always |

12. Managing equipment skillfully.

| never | almost never | occasionally | usually | almost always | always |

13. Allowing the patient to express feelings about his or her disease and treatment.

| never | almost never | occasionally | usually | almost always | always |

174

14. Including the patient in planning his or her care.

never	almost never	occasionally	usually	almost always	always

15. Treating patient information confidentially.

never	almost never	occasionally	usually	almost always	always

16. Returning to the patient voluntarily.

never	almost never	occasionally	usually	almost always	always

17. Talking with the patient.

never	almost never	occasionally	usually	almost always	always

18. Encouraging the patient to call if there are problems.

never	almost never	occasionally	usually	almost always	always

19. Meeting the patient's stated and unstated needs.

never	almost never	occasionally	usually	almost always	always

20. Responding quickly to the patient's call.

never	almost never	occasionally	usually	almost always	always

21. Helping to reduce the patient's pain.

never	almost never	occasionally	usually	almost always	always

22. Showing concern for the patient.

never	almost never	occasionally	usually	almost always	always

23. Giving the patient's treatments and medications on time.

never	almost never	occasionally	usually	almost always	always

24. Relieving the patient's symptoms.

never	almost never	occasionally	usually	almost always	always

From: Zane Wolf [mailto:wolf@lasalle.edu]
Sent: Monday, October 01, 2012 2:44 PM
To: Joyce Volsch
Subject: FW: Permission to use Caring Behaviors Inventory-24 for dissertation

Dear Joyce:

See attached.

Best wishes,

Zane Robinson Wolf, PhD, RN, FAAN
Dean Emerita and Professor
School of Nursing and Health Sciences
La Salle University
Editor, International Journal for Human Caring St. Benilde Tower 3330
1900 West Olney Avenue
Philadelphia, PA 19141
215 991 2273
215 991 2941 (Fax)
wolf@lasalle.edu

Release Form for the Caring Behaviors Inventory (CBI)
(All Versions)

Name ___Joyce Volsch_____ Degrees __RN, MS_____
Address __P.O. Box 11609_____
          ___San Bernardino, CA 92423_____
Phone (Work) ___562-519-4297_____
        (Home) ___909-379-5355_____

1. Very briefly describe your research project:

   Determine if nurse caring behaviors have a predictive effect on pregnancy specific anxiety and maternal-fetal attachment in pregnant women who have previously experienced a perinatal loss.

2. Estimate how many subjects will complete the CBI:

        60 – 80 women

3. If the research project involves a thesis or dissertation, please print the major advisor's name and address below:
   Elizabeth Bossert, DNS
   Loma Linda University Graduate School of Nursing

4. I agree to send an electronic copy of the CBI used in my study to Zane Robinson Wolf for her files.

5. I agree to share the results of my study (abstract) with Zane Robinson Wolf. She will add the results to her database. I will also give her descriptive information about subjects who completed the CBI.

Joyce Volsch, RN, MS

_____   __10 – 08-2012_____
Signature   Date

You have my permission to use the CBI.

Zane Robinson Wolf
Zane Robinson Wolf, PhD, RN, FAAN

Please retain one copy of this form for your records. You can sign the form electronically or send the original back to 27 Haverford Road, Ardmore, PA 19003, USA. 9/23/12

APPENDIX L

MEASUREMENT: MATERNAL DEMOGRAPHICS
&
OPTIONAL OPEN ENDED QUESTIONS

Investigator's Demographic Log
EFFECTS OF NURSE CARING BEHAVIORS ON MOTHERS' ANXIETY AND ATTACHMENT IN PREGNANCY SUBSEQUENT TO LOSS

Subject Study ID#_____
Investigator/Co-Investigator:___JOYCE VOLSCH, RN, MS_____
Today's Date:_____

Inclusion Criteria
1. All patients >18 years
2. History of previous pregnancy that resulted in perinatal loss
3. Current gestational age estimated $\geq$ 16 weeks
4. Read and understand English

Exclusion Criteria
1. Pregnancy a result of a surrogate agreement
2. Non-English speaking

Number pregnancies: _____	**Number live children:** _____
Current Age: _____	**Expected Date of Delivery:** _____ (current pregnancy) (month/year)
Date of Perinatal Loss _____ (month/year)	**Stage of pregnancy at loss:** ☐ < 3 mos ☐ 3 mos – 6 mos ☐ 7 – 9 mos ☐ at delivery – 24 hrs

Family Information	**Race**	**Education Level:**
☐ Married ☐ Single ☐ Widow ☐ Divorced ☐ Domestic Partner ☐ Significant other **Annual Income:** ☐ $0-10,000 ☐ $10,001-25,000 ☐ $25,001-$50,000 ☐ $50,001-$100,000 ☐ over $100,000 ☐ Prefer not to answer	☐ White ☐ Black ☐ Hispanic ☐ Asian ☐ Native American ☐ Pacific Islander ☐ Other _____ ☐ Prefer not to answer	< High School_____ ☐ High School Diploma ☐ 2-year College Degree ☐ Baccalaureate ☐ Graduate Degree

OPTIONAL OPEN ENDED QUESTIONS (OPTIONAL)

We value any and all information that you are willing to share to help us better understand the experience of perinatal loss and pregnancy that occurs following a loss.

1. I am interested in your experiences with your nurse(s) when you lost your baby and in your current pregnancy after your loss. Tell me about your experience and include what the nurse specifically did that made you feel cared about and anything that was not viewed as helpful or meaningful to you.

2. Is there anything else you would like me to know about nurses' behaviors and/or interaction with you and your family during your loss experience and your current pregnancy?

MEASUREMENT: GENERAL ANXIETY (GA)

MINI IPIP (INTERNATIONAL PERSONALITY ITEM POOL)

IPIP Anxiety subscale

The following 10 phrases describe people's behaviors. Check the response option that rates how accurately each statement describes *you*. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then check the box that corresponds to the response number on the scale.

Behavior Description	Very Inaccurate	Moderately Inaccurate	Neither Inaccurate nor Accurate	Moderately Accurate	Very Accurate
1. Worry about things.	1	2	3	4	5
2. Fear for the worst.	1	2	3	4	5
3. Am afraid of many things.	1	2	3	4	5
4. Get stressed out easily.	1	2	3	4	5
5. Get caught up in my problems.	1	2	3	4	5
6. Am not easily bothered by things.	1	2	3	4	5
7. Am relaxed most of the time.	1	2	3	4	5
8. Am not easily disturbed by events.	1	2	3	4	5
9. Don't worry about things that have already happened.	1	2	3	4	5
10. Adapt easily to new situations.	1	2	3	4	5

NEO = Revised version of the NEO Personality Inventory (NEO-PI-R: Costa & McCrae, 1992)

The Items in Each of the Preliminary IPIP Scales

Measuring Constructs Similar to Those in the NEO-PI-R

30 NEO Facets

N1: ANXIETY (Alpha = .83)
+ keyed   Worry about things.
         Fear for the worst.
         Am afraid of many things.
         Get stressed out easily.
         Get caught up in my problems.
– keyed   Am not easily bothered by things.
         Am relaxed most of the time.
         Am not easily disturbed by events.
         Don't worry about things that have already happened.
         Adapt easily to new situations.

MEASUREMENT: PREGNANCY SPECIFIC ANXIETY

PREGNANCY ANXIETY SCALE (PAS).

DIRECTIONS: The following phrases are about "<u>How it Feels to be Pregnant</u>". Please think about your <u>current pregnancy</u> when answering the following questions.

Read each phrase below and <u>mark the line below it with an "X"</u> at the place that best answers the question.

EXAMPLE: I like to relax by the water.

Definitely |—————————————————| Definitely
No   Yes

···

1. When I think about this pregnancy I feel anxious.

Definitely |—————————————————| Definitely
No   Yes

2. I feel overwhelmed because of the anxieties related to this pregnancy.

Definitely |—————————————————| Definitely
No   Yes

3. I am confident that this baby will be fine.

Definitely |—————————————————| Definitely
No   Yes

4. I worry whether I will be able to bring this pregnancy to term.

Definitely |—————————————————| Definitely
No   Yes

5. I feel anxious when people talk about the future with this baby.

Definitely
No
|————————————————————————————————|
Definitely
Yes

6. I am concerned that my efforts and sacrifices for this pregnancy won't be enough.

Definitely
No
|————————————————————————————————|
Definitely
Yes

7. I feel that I am holding-back my emotions about this pregnancy.

Definitely
No
|————————————————————————————————|
Definitely
Yes

8. I worry about getting myself through this pregnancy.

Definitely
No
|————————————————————————————————|
Definitely
Yes

9. Becoming emotionally attached to my baby is easy.

Definitely
No
|————————————————————————————————|
Definitely
Yes

From: Cote-Arsenault, Denise [mailto:Denise_Cote-arsenault@URMC.Rochester.edu]
Sent: Monday, July 06, 2009 14:39
To: Volsch, Joyce
Subject: RE: Prenatal attachment scale

Hi Joyce, I am happy to help you with measures but the choice of some of them is still uncertain. I used the CES-D in my pilot study because it has been used extensively with pregnant women; I did not use the MAACL-R again because it did not discriminate the women in that longitudinal study well. Those who were depressed were picked up but everyone else had "no depression" which is not helpful. I have never used a grief scale so I really don't have any advice. I know that they Perinatal Grief Scale is out there but I do not know of others.
You are welcome to use my Pregnancy Anxiety Scale; I have attached it and the instructions. Please let me know your findings if you use it.
The stress in my life also asks about stress in pregnancy, so that you can see whether they are the same or different.
Be sure, with both VAS to measure the line after copying your questionnaires; some copiers change the length and you want 10 cm (100 mm).

Let me know if you have questions. Denise

Denise Côté-Arsenault, PhD, RNC, IBCLC, FNAP
Associate and Brody Professor

MEASUREMENT: MATERNAL FETAL ATTACHMENT

MATERNAL ANTENATAL ATTACHMENT SCALE (MAAS)

MATERNAL ANTENATAL ATTACHMENT SCALE

These questions are about your thoughts and feelings about the developing baby. Please tick one box only in answer to each question**.**

---

1) <u>Over the past</u> two weeks I have thought about, or been preoccupied with the baby inside me:

☐ Almost all the time

☐ Very frequently

☐ Frequently

☐ Occasionally

☐ Not at all

2) <u>Over the past</u> two weeks when I have spoken about, or thought about the baby inside me I got emotional feelings which were:

☐ Very weak or non-existent

☐ Fairly weak

☐ In between strong and weak

☐ Fairly strong

☐ Very strong

3)   <u>Over the past</u> two weeks my feelings about the baby inside me have been:

◻   Very positive

◻   Mainly positive

◻   Mixed positive and negative

◻   Mainly negative

◻   Very negative

4)   <u>Over the past</u> two weeks I have had the desire to read about or get information about the developing baby. This desire is:

◻   Very weak or non-existent

◻   Fairly weak

◻   Neither strong nor weak

◻   Moderately strong

◻   Very strong

5)   <u>Over the past</u> two weeks I have been trying to picture in my mind what the developing baby actually looks like in my womb:

◻   Almost all the time

◻   Very frequently

◻   Frequently

◻   Occasionally

◻   Not at all

6) <u>Over the past</u> two weeks I think of the developing baby mostly as:

☐ A real little person with special characteristics

☐ A baby like any other baby

☐ A human being

☐ A living thing

☐ A thing not yet really alive

7. <u>Over the past</u> two weeks I have felt that the baby inside me is dependent on me for its well-being:

☐ Totally

☐ A great deal

☐ Moderately

☐ Slightly

☐ Not at all

8) <u>Over the past</u> two weeks I have found myself talking to my baby when I am alone

☐ Not at all

☐ Occasionally

☐ Frequently

☐ Very frequently

☐ Almost all the time I am alone

9. <u>Over the past</u> two weeks when I think about (or talk to) my baby inside me, my thoughts:

☐	Are always tender and loving
☐	Are mostly tender and loving
☐	Are a mixture of both tenderness and irritation
☐	Contain a fair bit of irritation
☐	Contain a lot of irritation

10. <u>The picture in my mind </u>of what the baby at this stage actually looks like inside the womb is:

☐	Very clear
☐	Fairly clear
☐	Fairly vague
☐	Very vague
☐	I have no idea at all

11. <u>Over the past</u> two weeks when I think about the baby inside me I get feelings which are:

☐	Very sad
☐	Moderately sad
☐	A mixture of happiness and sadness
☐	Moderately happy
☐	Very happy

12. <u>Some pregnant women</u> sometimes get so irritated by the baby inside them that they feel like they want to hurt it or punish it:

   ☐   I couldn't imagine I would ever feel like this

   ☐   I could imagine I might sometimes feel like this, but I never actually have

   ☐   I have felt like this once or twice myself

   ☐   I have occasionally felt like this myself

   ☐   I have often felt like this myself

13. <u>Over the past</u> two weeks I have felt:

   ☐   Very emotionally distant from my baby

   ☐   Moderately emotionally distant from my baby

   ☐   Not particularly emotionally close to my baby

   ☐   Moderately close emotionally to my baby

   ☐   Very close emotionally to my baby

14. <u>Over the past</u> two weeks I have taken care with what I eat to make sure the baby gets a good diet:

   ☐   Not at all

   ☐   Once or twice when I ate

   ☐   Occasionally when I ate

   ☐   Quite often when I ate

   ☐   Every time I ate

15. <u>When I first</u> see my baby after the birth I expect I will feel:

    ☐   Intense affection

    ☐   Mostly affection

    ☐   Dislike about one or two aspects of the baby

    ☐   Dislike about quite a few aspects of the baby

    ☐   Mostly dislike

16. <u>When my baby</u> is born I would like to hold the baby:

    ☐   Immediately

    ☐   After it has been wrapped in a blanket

    ☐   After it has been washed

    ☐   After a few hours for things to settle down

    ☐   The next day

17. <u>Over the past</u> two weeks I have had dreams about the pregnancy or baby:

    ☐   Not at all

    ☐   Occasionally

    ☐   Frequently

    ☐   Very frequently

    ☐   Almost every night

18. <u>Over the past</u> two weeks I have found myself feeling, or rubbing with my hand, the outside of my stomach where the baby is:

☐   A lot of times each day

☐   At least once per day

☐   Occasionally

☐   Once only

☐   Not at all

19. <u>If the pregnancy</u> was lost at this time (due to miscarriage or other accidental event) without any pain or injury to myself, I expect I would feel:

☐   Very pleased

☐   Moderately pleased

☐   Neutral (ie neither sad nor pleased; or mixed feelings)

☐   Moderately sad

☐   Very sad

Scoring and scales:

Quality of attachment

(3) (6) (9) (10) 11 (12) 13 (15) (16) 19
<u>Time spent in attachment mode (or intensity of preoccupation)</u>
(1) 2 4 (5) 8 14 17 (18)

Item 7 does not load on either factor strongly enough for inclusion on subscales. We usually include it in the global attachment score, and **it should be reversed.**

Items in brackets are reversed scored. Scoring is 1-5, with 5 high attachment

From: "Condon, John (Health)" <John.Condon@health.sa.gov.au>
To: 'JOYCE VOLSCH' <joycevolsch@yahoo.com>
Cc: "jvolsch@memorialcare.org" <jvolsch@memorialcare.org>
Sent: Tuesday, September 25, 2012 6:14 PM
Subject: RE: Permission to use MAAS for dissertation

I attach both the antenatal scale with scoring instructions (and a few articles which might be of interest).
You are welcome to use this in your research. I have no problem with the translation (but would suggest you do a back-translation) to ensure accuracy. No problem with the on-line use.
Regards,

Prof. John Condon
Professor of Psychiatry
Flinders University
Repatriation General Hospital
Daw Park SA 5041