REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	15 Apr 98	

4. TITLE AND SUBTITLE
PARENTING OUTCOMES OF SINGLE ACTIVE DUTY POSTPARTUM WOMEN

5. FUNDING NUMBERS

6. AUTHOR(S)
Annette Gomez

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
University of Washington

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
THE DEPARTMENT OF THE AIR FORCE
AFIT/CIA, BLDG 125
2950 P STREET
WPAFB OH 45433

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
98-001

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Unlimited distribution
In Accordance With AFI 35-205/AFIT Sup 1

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

14. SUBJECT TERMS

15. NUMBER OF PAGES
74

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

PARENTING OUTCOMES OF SINGLE ACTIVE DUTY POSTPARTUM WOMEN

by

Annette Gomez

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Nursing

University of Washington

1998

Approved by Karen Thomas

Associate Professor, Karen Thomas
Department of Family and Child Nursing

Susan Blackburn

Program Authorized To Offer Degree School of Nursing

Date March 19, 1998

Master's Thesis

In presenting this thesis in partial fulfillment of the requirements for a Master's degree at the University of Washington, I agree that the Library shall make its copies freely available for inspection. I further agree that extensive copying of this thesis is allowable only for scholarly purposes, consistent with "fair use" as prescribed in the U.S. Copyright Law. Any other reproduction for any purposes or by any means shall not be allowed without my written permission.

Signature Annetta Gomez

Date March 19, 1998

University of Washington

Abstract

PARENTING OUTCOMES OF SINGLE ACTIVE DUTY POSTPARTUM WOMEN

by

Annette Gomez

Chairperson of the Supervisory Committee: Associate Professor, Karen Thomas
Department of Family and Child Nursing

Single active duty mothers face many of the same stressors as civilian single parents, including role strain, child care issues, and lack of discretionary time. Child care is a difficult issue for single parents who need care that is flexible, convenient, and available at a reasonable cost. Deployments, work-related travel, shift-work, and relocations pose additional and unique problems for child care arrangements for military (Wahl & Randall, 1996). The purpose of this secondary analysis was to describe the impact of infant, parent, and environmental factors on parenting ability in single active duty women.

The proposed study was a descriptive correlational design. The original study was a two-group quasi-experimental design with repeated measures. Subjects were randomly assigned to experimental and control groups and stratified according to their active duty status into four subgroups. The present study used subjects from subgroup 4) single mother who is active duty. The original study examined mothers 32-36 weeks prenatally, 24-48 hours postnatally, two weeks postnatally, two months postnatally, four months postnatally, and six months postnatally. Subjects for this secondary analysis were selected from the mothers and infants who completed the primary study.

The control and experimental groups were combined for statistical analysis when no differences were found. The only statistical differences between groups were age. The control group was 3.94 years older than the experimental group.

Over time the reported stress symptoms increased. A similar theme appeared as the data were examined. Fatigue-related symptoms increased over time, depression increased over time, maternal sleep decreased postnatally, and challenges faced by this group of women increased over time. It would appear that all of these factors effect one another.

The results of NCATS found the mother and child subscale and contingency items were all slightly lower than average but well above the "worrisome" level. Grouped scores from this set of women do not appear to be disturbing. However, some of the individual scores were quite low. Based on the mean results, being a single active duty mother was not detrimental to the parent-child interaction but must be assessed individually.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

TIME OF MEASURE

T_1 = prenatally
T_2 = 24-48 hours postnatally
T_3 = 2 weeks postnatally
T_4 = 2 months postnatally
T_5 = 4 months postnatally
T_6 = 6 months postnatally

DEDICATION

The author wishes to dedicate this thesis to Robert Gomez whose love, support, and understanding helped me achieve my goals. And to all the single mothers of the armed forces whose difficult work of juggling military and mothering roles is a glowing mark for women.

CHAPTER 1: STATEMENT OF PROBLEM

Traditionally, military personnel, especially enlisted personnel, were single, never-married males without children. Until recently military policy restricted the enlistment of single parents, but allowed those who became single parents to remain on active duty. If these recruits chose active duty, power of attorney was given to a family member. To continue on active duty, these service members, like others, must perform their military responsibilities without interference and be available for duty when and where the military needs them.

Female participation in the United States military services has increased dramatically since the early 1970's. The military unit and the family vie for the time, resources, and loyalty of military women in the multiple roles they play: military service member, woman, and mother. Segal (1986) described both the military and the family as "greedy institutions" in that they place a high number of demands on their members and require a great deal of sacrifice from them. These two institutions compete for the time, resources, and loyalty of the members, with their goals, demands, and requirements often in conflict with each other. Active duty military personnel who are parents must somehow organize their lives so there is no discord between the military and family and instead find a "fit" between the two. This "fit" between the military and family is even more critical for the single active duty mother. Without the support of a significant other or the extended family, single active duty mothers have greater demands placed on them than on their civilian counterparts. This makes it difficult for the single active duty mother to balance her military and mothering roles. It is not surprising that a large percentage of single active duty women with children do not re-enlist (Schumm, Bell, Rice, & Sanders, 1996).

Single active duty mothers face many of the same stressors as civilian single parents, including role strain, child care issues, and lack of discretionary time. Child care is a difficult issue for single parents who need care that is flexible, convenient, and available at a reasonable cost. Deployments, work-related travel, shift-work, and relocations pose

additional and unique problems for child care arrangements for military women (Wahl & Randall, 1996).

There is little information on military single parent families, however the literature is replete with information regarding civilian single parent families. Single parent households grew from five percent of all U.S. households in 1970 to nine percent in 1990. However, this number fails to reflect the many single parents and their children who have moved into the homes of other family members (U.S. Bureau of Census, 1990). Single parent households with children under the age of 18 years has increased 46% since 1980. Seven million single parent households were families headed by a woman (U.S. Bureau of Census, 1990). Between 1970 and 1990, the proportion of children living with one parent has more than doubled, increasing from 12% to 26%, (U.S. Bureau of Census, 1990). Sixty-one percent of all children will spend all or part of their formative years in a single parent household (U.S. Bureau of Census, 1990).

Because of increasing recruitment and retention of women in the military, it is currently estimated that the number of single parents and their relative proportion to the total force will continue to increase in all military service branches. Such projections have caused some alarm among military leadership who questioned the military commitment of single parents of military service (U.S. General Accounting Office, 1982).

Child care and other concerns related to child care have been shown to be a significant distress to mothers in several studies (Gjerdingen, McGovern, Chaloner, & Street, 1995; Rankin, 1993; Roberts & McGovern, 1993). Juggling motherhood and duties of the military assignment places great demands on the single active duty woman. Some of the issues that face this population are role strain, child care issues, and lack of discretionary time. Other issues unique to this population are the possibility of deployments, work-related travel, and frequent relocations.

Increasing mother-child attachment will have positive, long-term outcomes. The quality of this interaction has been positively correlated with later child outcomes (Karl, 1991). The impressive amount of literature in this area has examined early mother-infant interaction and child attachment security to define the boundaries of interaction, which would predictably result in a securely attached child. The common conclusion is that this early interaction must be bi-directional and reciprocal (Barnard, 1978; Brazelton, Koslowski, & Main, 1974).

In the past child abuse is more prevalent in the military population. Factors cited are integration of a new infant, family discord, relocation, and isolation (Dubanoski & McIntosh, 1984). Programs of treatment and prevention must be developed and implemented to fit the needs and life styles of military families.

Role overload for military mothers occurs from the responsibility for the day-to-day running of the household and performing the household tasks as "second shift". Compared to civilian women, military women are most likely to give up their careers. In many cases, the military services lose a valuable service-member in the active duty woman's decision not to re-enlist (Wahl & Randall, 1996) and one in where the military has invested money, training, education, etc.

The significance of this study will be a description of the factors that contribute to parenting outcomes for the single active duty mother. By addressing these factors, a connection may be drawn to what role stressors are evident, how it effects parenting ability, and interventions may be suggested to decrease the role stressors found, thus improving parenting.

PURPOSE

Little research has been done concerning the impact of infant, parent, and environmental factors on parenting in single active duty mothers. There is substantial

research regarding such factors in married mothers and single mothers. This may be extrapolated, with caution, to the single active duty mother. However, a study to describe the factors of infant, parent, and environment is imperative to consider how being a single active duty mother influences parenting outcomes. Identifying and addressing any issues that affects the parent-child interaction will promote long-term positive effects of the children in this population of women. The purpose of the study was to describe the impact of infant, parent, and environmental factors on parenting ability in single active duty women.

Based on the purpose and the literature review, the following questions have been developed:

RESEARCH QUESTIONS

PARENT FACTORS

1. What is the level of fatigue experienced by single active duty women in the first six months postpartum as measured by the Visual Analog Scale-Fatigue (VAS-F)?

2. What is the level of stress experienced by single active duty women in the first six months postpartum as measured by the stress symptoms from the Women's Health Diary?

3. What is the level of depression experienced by single active duty women in the first six months postpartum as measured by the Beck Depression Index (BDI)?

4. How many hours of sleep in a 24-hour day is reported by single active duty women in the first six months postpartum as measured by the Nursing Child Assessment Sleep/Activity record (NCASA)?

5. What is the degree to which work interferes with personal and family life of single active duty women in the first six months postpartum as measured by the Interference Scale (IS)?

INFANT FACTORS

6. What is the temperament of four month old infants of single active duty women postpartum as measured by Early Infant Temperament Questionnaire (EITQ)?

7. How many hours of sleep in a 24-hour day do infants receive at two weeks, two months, four months, and six months as reported by their mothers, measured by Nursing Child Assessment Sleep/Activity record (NCASA)?

ENVIRONMENTAL FACTORS

8. What are the child care arrangements used by single active duty women in the first six months postpartum as measured by the Child Care Resources Questionnaire (CCRQ)?

9. What are the challenges faced by single active duty women in the first six months postpartum as measured by the Difficult Life Circumstances (DLC) screening tool?

PARENTING OUTCOMES

10. What are the parenting outcomes of single active duty women at six months postpartum as measured by the Nursing Child Assessment Teaching Scale (NCATS)?

CHAPTER 2: LITERATURE REVIEW

Many factors affect the mother-child interaction that begins prior to birth then escalates from postbirth on and has lasting life long effects on the child. Parent factors include fatigue, stress, depression, sleep, and work interference with personal and family life. Infant factors include temperament and sleep. Environmental factors include child care and challenges. The factors of parent, child and environment will be discussed in how they influence parenting outcomes. This literature review will begin describing available current literature relating to women in general, mothers, single mothers, and lastly, single active duty mothers in relation to specific parenting and environmental. Parent factors addressed are fatigue; stress; depression; sleep; and work interference with personal and family life. Environmental factors addressed are child care issues and challenges. Infant factors addressed are temperament and sleep.

PARENT FACTORS

FATIGUE

In general many people suffer from fatigue. It is the seventh most common symptom in primary care (Kroenke, Wood, Mangelsdroff, Meier, & Powell, 1988). Since fatigue is difficult to quantify it is often viewed as a minor complaint. Descriptions of fatigue are both subjective and objective. Subjective evidence of fatigue includes being weary, worn out, listless, having no energy, and a strong desire to lie down or sleep. Objective signs of fatigue are the appearance of being worn out, wan, lethargic, slowed down, face sagging, body slumping, and a dull, expressionless face (Hart & Freel, 1982). The objective and subjective symptoms of fatigue are similar to depression, in fact, it is often difficult to determine if depression/anxiety are the cause or the result of fatigue (Montgomery, 1983). In order to provide appropriate interventions, the provider must be able to distinguish between fatigue and depression (Gardener, 1991).

Birth is considered to be a normal event in the life cycle of a woman who chooses to bear children. The entire process of birthing and assuming parental responsibilities following birth requires a great deal of energy. The woman's body undergoes many changes and physiological demands during pregnancy and delivery. The changes of exertion, stress, and physiological changes related to fluid shifts and metabolic processes contribute to the feelings of fatigue (Gardner, 1991). Therefore, it is not unexpected that fatigue is a common complaint among new mothers and can persist for as long as a year after delivery (Acheson, & Danner, 1993; Parks, Lenz, & Jenkins, 1992). Fatigue makes it difficult for the mother to respond to the infant's social and emotional needs and provide the stimulation required to enhance development (Parks et al., 1992).

Gardner (1991) surveyed 35 women who vaginally delivered at two days, two weeks, and six weeks postpartum. This sample was found to be mildly fatigued, with situational and/or psychological fatigue. When fatigue was correlated with demographics, findings indicated 1) older mothers experienced less fatigue, 2) fatigue increased with child care problems, 3) mothers who were more educated felt less fatigue, and 4) there was less fatigue with more household help. A study by Parks et al. (1992) found mothers who experienced fatigue had decreased infant developmental stimulation if they did not have the buffer of more diverse sources of support.

Numerous active duty military women are medical personnel or are in other fields that require shift work, many times consisting of twelve hour shifts. Often this shift work includes rotating twelve-hour days and nights over a one- to three-month-period. Frequently pregnant women are continuing to work these long, rotating shifts until delivery. An obstetrician may give the active duty pregnant woman a waiver to work daytime hours, eight hours per day, reducing shift time and rotating shifts. However, depending on staffing of the unit, the waiver may not be honored. Unless there is direct evidence of endangering the fetus or the mother it is up to the discretion of the commanding officer of the unit to honor the waiver. These long hours contribute to the pregnant military female's fatigue.

The American College of Obstetricians and Gynecologists (1988) recommends a maternity leave for healthy women of two weeks before and six weeks after delivery to rest, recover, and adjust to motherhood. In the United States, no federally mandated parental leave existed until the recent 1993 Family Medical Leave Act, which requires companies with 50 or more employees to offer 12 weeks of job-protected maternity leave. This is in contrast to policies in most affluent countries that mandate 14 to 18 weeks of maternity leave (Association of American Medical Colleges, 1991). All branches of the military allow only six weeks of postpartum leave. If the military member has leave accumulated and unit staffing allows, she may come back to work for a short time and then continue leave.

Two groups of investigators found that full recovery of functional ability after childbirth takes more than six weeks, especially for woman who had cesarean births (Gjerdingen & Froberg, 1991; Tulman & Fawcett, 1991). The majority of white, married, professional women resumed most activities and employment by 6 to 12 weeks after delivery regardless of whether they had regained their usual level of energy. These women who returned to work were more likely to: 1) have healthy infants, 2) have sleeping infants through the night, 3) not breast-feed, 4) report more help from their husbands and better relationships with their husbands, 5) have had vaginal births, and 6) report fewer physical problems and fewer chronic medical conditions than those women who did not return to work (Gjerdingen & Froberg, 1991; Tulman & Fawcett, 1991). How do single mothers recover from childbirth when they do not have the support and assistance from husbands? These single women must provide care to their newborn infant and maintain their households while recovering from delivery. This is a particular hardship to bear for single active duty women. Single active duty women may be unable to get enough rest prior to birth because they are working until delivery. Even more fatigue producing, they must provide all newborn care for their infants. Fatigue symptoms may be even more prominent in this population of women.

STRESS

Stress has become a basic theme in our culture as suggested by the increase in theories and research focused on stress published in the health-related literature. In general, stress is related to physical and emotional symptoms. Women's experience of stress and resulting health outcomes appear to be related to changing societal trends and expectations (Killien & Brown, 1987).

The role of motherhood has taken on a more diverse meaning in recent times. Women who work outside the home must balance motherhood and their careers. More and more women have joined men in the workforce in the last part of this century (Albright, 1992). Women have educational and employment opportunities previously unavailable to them and they have entered the workforce on all levels (Albright, 1992). Regardless of the reason for employment, working women share some stresses. Working mothers are constantly in conflict with the cultural norms regarding the mothering role (Albright, 1992).

One area of stress that affects the working mother is the lack of parental leave policy. The United States is one of the few industrialized nations that do not provide paid leaves to parents of newborns. Several European countries either offer 90% salary for the first nine months and job guarantees for another year or offer parental leave benefits for either parent (Albright, 1992).

Working mothers find lack of partner support with child care duties to be an area of stress. Although Pleck (1983) found those husbands with employed wives do household duties (including child care) only 1.8 hours per week more than husbands with unemployed wives. Another study found that employed wives perform household duties more than twice as much of the time as their husbands (Googins & Burden, 1987). A study by Rankin (1993) reported working mothers frequently cited time constraints and organizing and scheduling of activities as stresses of being employed.

It is widely known and accepted that being a single mother is a risk factor for stress. Juggling multiple responsibilities of job and home is especially stressful for the single mother. Inequality of salary levels for men and women and time spent on home chores and child care places greater stress on single mothers (Burden, 1986).

DEPRESSION

It is essential that a new mother be emotionally available for her infant from the time of birth. If a factor such as depression is present then mother-infant interaction will be affected (Karl, 1991). The significance of the study of postpartum depression lies in the potential negative long-term affects on mothers' adaptation to postpartum and early parenting, particularly interference with the developing mother-infant interaction (Field, 1985; Hopkins, Campbell, & Marcus, 1987). The majority of studies reviewed suggested that 4% to 30% of new mothers suffer from severe postpartum depression (Acheson & Danner, 1993; Beardslee, Bemporad, Keller; Klerman, 1983; O'Hara, Newnaber, & Zekoski. 1984; Paykel, Emms, Fletcher, & Rasabey, 1980). Depression that does not cause severe enough symptoms for a woman to seek professional help and does not interfere significantly enough with daily activities to require hospitalization may go untreated (Karl, 1991). The etiology of postpartum depression remains unclear because of the complex physiological and psychosocial factors thought to be involved.

Depression has a growing relevance for mothers of young children. It is likely to be endemic among mothers who lack resources and support systems (Karl, 1991); situational depression is related to the reality in which the mother perceives herself to be living. It tends to persist on a subclinical level and evade treatment because it escapes the notice of providers (Karl, 1991). Postpartum depression occurs at a critical time when the task of establishing parameters for positive mother-infant interaction is ongoing (Karl, 1991).

Depressed behavior has been described as: depressive mood with crying or sad feeling, anxiety or irritability, slowed speech and body movements (Wessman & Paykel,

1974), self-absorption (Anthony, 1983), reduced enjoyment and pleasure (Kline, 1974), feelings of lowered self-esteem and vulnerability (Zahn-Waxler, Cummings, McKnew, & Radke-Yarrow, 1984), and somatic symptoms, including sleep disturbances, anorexia, and headaches (Freden, 1972). Depressive symptoms may also be episodic and unpredictable (Radke-Yarrow, Cummings, Kucznski, & Chapman, 1985).

Maternal depressive behaviors have significant deleterious effects on parenting. Depressed parents are more apt to maltreat their children (Kinard, 1982) and maltreating parents are more apt to be depressed (Lyons-Ruth, Zoll, Connell, & Grunebaum, 1986; Wasserman, Green, & Allen, 1983). Weissman and Paykel (1974) found that depressed mothers could be aggressive toward their children even when they are withdrawn and weepy to non-family members. Others identified maternal behaviors in depressed mothers that were associated with increased covert hostility toward their infant (Lyons-Ruth et al., 1986). Behaviors they identified include increased frequency of interfering manipulation of the infant and markedly flat affect during interaction with the infant. Their findings were consistent with those from the study of Weissman and Paykel (1974) where postpartum depressed mothers overfed their young infants, showed anxiety about leaving them, and displayed openly hostile feelings toward them at times. Lyons-Ruth's findings also coincided with Belle's (1982) work, which found that depressed, low-income mothers were more critical and demanding while being less warm and responsive than low-income mothers who were not depressed. These statistics may help us understand the data offered by Resnick (1969) who discovered that in 131 parent-child murder cases reviewed, 71% of the mothers had been depressed.

Identification of maternal depression may be difficult, but the interactions observed between mother and infant may be more apparent. For example, Lyons-Ruth et al. (1986) found nurse practitioners referred high-risk mothers for counseling of depression based on observation of parenting difficulties. Two-thirds of these mothers were later shown to be depressed even though they had not reported depressive symptoms to the

practitioner. In this case, indications of parenting dysfunction had preceded maternal depressive symptoms.

Few studies have been done on the single mother. A study by Burden (1986) found single female parents were more prone to depression and decreased life satisfaction from the demands of job and family stresses. Three risk factors emerged from this study, all of which were associated with low measures of emotional well being: single marital status, being female, and being a parent.

SLEEP

Disturbed sleep patterns and insufficient amounts of sleep are frequent complaints of women during the immediate postpartum period primarily because of the newborn's seemingly random eating and sleeping patterns. Sleep deprivation and fatigue have been implicated as risk factors for negative health outcomes such as postpartum depression or problems with maternal-infant interaction (Karacan, Williams, Hursch, McCaulley, & Heine, 1969; Lee & DeJoseph, 1992).

A study examined the sleep patterns of postpartum women the first night following delivery. The findings indicated that these women were in a sleep deprived state (Zaffke & Lee, 1992). Another study corroborated these findings that having a baby does deprive a new mother of sleep (Lee & DeJoseph, 1992). This study also found that pregnant women reported frequent difficulty falling asleep in the past month and high frequency of midsleep awakenings. Understanding the childbearing woman's sleep patterns will assist the researcher in linking fatigue, depression, and stress to the single, active duty mother.

WORK INTERFERENCE WITH PERSONAL AND FAMILY LIFE

In past generations women organized their lives primarily to meet family-related objectives. Women today are interested in meeting both personal and career objectives. The "typical" American family, including a father who is the wage earner, the mother

who works inside the home, with several children, is representative of fewer than 12% of American families (Killien & Brown, 1987).

The combination of work and family roles is thought to be more stressful for women than for men. A study compared female and male managers and professionals found that women reported higher levels of stress and stressors, however there were family and not job related factors (Staats & Staats, 1983). As women assume more job-related responsibilities, family and household demands persist for women. Studies show that women still contribute the majority of household work while holding down a full time job (Googins & Burden, 1987; Lein, 1984; Pleck, 1983). When husbands assume family tasks, they are most likely to assume responsibility for social and rewarding times with children (e.g., bath time, reading) (Lein, 1984). Mothers continue to deal with children when they are temperamental, unhappy, or in need of assistance with physical needs resulting in a decrease in social time with family but her overall workload may remain constant (Lein, 1984).

The juggling of role responsibilities and demands takes a toll on women's health. Women may find the only means to take time for themselves and task accomplishment is to cut down on sleep. In order to have time for themselves, women stayed up later and arose earlier than other family members (Lein, 1984). This creates a cycle of fatigue, in which less is accomplished, and more efforts are exerted, increasing the women's fatigue.

Although husbands have not shown to decrease the impact of family and household demands on the woman, husbands do provide some supportive function; single mothers do not have the support of a husband. Single mothers are managing child, household, and job demands alone. Role conflict exists when an individual is torn by conflicting demands. When an individual must simultaneously meet the demands of dissimilar and highly important roles, the conflict may be related to role proliferation (Miller, 1988).

A study by Killien and Brown (1987) examined different roles of women and how they ranked hassles by their role. This study used data gathered from the "Prevalence of Premenstrual Symptoms" project conducted by Woods. Wood's project generated data from 659 women of childbearing age (18-45 years) from three ethnic groups (black, Caucasian, Asian). The impact of roles on the experience of hassles was explored. The variable of having children and assuming all three roles (parent, worker, spouse) were each positively related to the number of hassles reported. The greater the role responsibility, the greater the number of hassles.

One of these roles in the Killien and Brown (1987) study was the single working mother. Single working mothers ranked self as the number one hassle, followed by child hassles, work hassles, and coworker/other. The self-category reflected reports of physical and emotional symptoms, unfulfilled expectations of self in various roles, lack of self-nuturance, and self-doubts. The number one coping response to hassles by all groups was no response. Not responding to daily hassles may lead to increase stress in women's lives.

A study by Burden (1986) found single mothers were at high-risk for high levels of job-family strain and decreased physical and emotional well-being. Lower well-being appeared to be related primarily to high levels of job-family role strain. This resulted for the most part from single mothers spending an average of 75 hours per week trying to balance both job and family responsibilities with little financial or emotional assistance. In spite of increased stress, however, single parents did not report significantly greater numbers of problems with children or more days absent than married parents.

INFANT FACTORS

INFANT TEMPERAMENT

It appears that children are born with a tendency to act and react to people and events in their lives in specific ways. The reactions are relatively consistent for each child in different situations and at different times. This "preferred style of responding" -a child's first and most natural way of reacting to the world around him- is called his temperament (Kurcinka, 1991). A child's temperament is an essential part of his nature and critically influences the parent-child interaction. Marked individual differences in behavior can be observed among infants in the first few months of life that may challenge the mother's coping resources to different degrees. Once the parents understand their child's temperament they can work with their child in predicting their reactions to different situations ending in success rather than failure (Carey, 1985).

Newborns are not blank slates with personality determined by nurturing rather than nature. Instead, they are born with a preferred style of responding to their world around them. Infants' personalities exhibit a range from easy-going to difficult. Easy-going infants display mild cries and are easily quieted while difficult infants display lusty, intense cries and are difficult to soothe (Cutrona & Troutman, 1986).

Parents often describe their infant as being a good baby or a very fussy baby that is difficult to manage. This parental perception of the infant may affect how the parents interact with their infant. The energy expenditure of the parents varies widely depending upon if their child is "easy" or "difficult". Much more energy is required by the parents of a difficult infant for such daily activities as feeding and sleeping schedules (Medoff-Cooper, 1995).

Thomas, Chess, and Birch (1968) introduced the concept of difficult temperament in their New York Longitudinal Study. This study investigated normal behavioral style traits and how they interacted with the environment in the creation of behavioral

problems. They found that behavior problems were more likely to develop between the ages of 2 and 10 years of age in their middle class population. These researchers were the first to coin the term "goodness of fit" and "poorness of fit" where the latter refers more to a poor fit between the child's temperament and the values and expectations of the parents than to their own temperaments. Difficult children can remain free of adjustment problems if their parents handle them skillfully (Carey, 1990).

Studies have documented relationships between certain temperament characteristics and various aspects of children's physical health, development, and behavior (Carey, 1986; Carey, 1990). Not only are problems in social behavior and academic performance involved in temperament, but also variations in growth and development, accidents, "colic", functional abdominal pain, sleep disturbances, and enuresis (Carey, 1990). A role of temperament in child abuse and failure to thrive is suspected. Children who are intense, negative, and slowly adaptable are likely to be harder for their parents to manage. These children are quick to report their symptoms to their parents, such as earache or abdominal pain, which leads to faster diagnosis and treatment but perhaps also to excessive treatment at times (Carey, 1990). During a famine in East Africa a child with a difficult temperament was more likely to survive than one that had an easy temperament, making the terms seem paradoxical. This is a case of a difficult child being a "goodness of fit" with his or her environment (Carey, 1986).

Cutrona and Troutman (1986) proposed that a relationship exist between difficult infant temperament and maternal depression. This is based on multifarious factors that include (a) aversive response to infant crying, (b) ambivalence toward the parenting role, (c) unmet expectations of the infant's behaviors, and (d) the stress and strain of living with a difficult-temperament infant.

Although the birth of a child is most often a joyful event, it can be highly stressful. A number of factors contribute to the severity of the stress that is experienced by the recently delivered mother, including the mother's health, the health of the infant, and the

number of additional stressful life events that occur during pregnancy and the postpartum period. This is especially true for the single mother who may be going through pregnancy and delivery without much support. For the active duty single mother it may be even more stressful without the option of greater than 6 weeks postpartum leave and with the possibility of deployment at any time after that.

If one is caring for a temperamentally difficult infant there may be gradual erosion in the mother's feelings of competence as a parent. Clinical observations have suggested that mothers of temperamentally difficult infants exhibit feelings of inadequacy and depression (Brazelton, 1961).

One resource that has been shown effective in helping women cope with a range of stressors following childbirth, such as a difficult infant, is social support (Cutrona & Troutman, 1986). In a study of temperamentally difficult infants and their families, it was found that mothers of irritable babies who had high levels of social support were able to establish more secure attachments with their infants than were women with low levels of social support (Crockenberg, 1981). Single active duty mothers do not have the same support as their civilian counterparts due to being away from home and relatives.

Results of one study found those postpartum women's sense of competence as parents and their overall sense of well-being were closely linked to the temperamental characteristics of their infants. Women who had other people on whom they could rely for a variety of social provisions had more confidence in their ability to perform well as mothers and this confidence, in turn, was an effective deterrent to depression (Cutrona & Troutman, 1986).

SLEEP

The organization of sleep-wake states is an important domain of infant behavior that incorporates several dimensions of temperament: rhythmicity, state regulation, activity, arousal, irritability, and soothability (Keener, Zeanah, & Anders, 1988). Factors that

influence settling and night waking are poorly understood. The literature has suggested that settling is related to biologic factors such as early perinatal insults that presumably interfere with the normal maturation of CNS mechanisms governing the entrainment of sleep-wake patterns to the light-dark cycle and the consolidation of nighttime sleep (Keener, Zeanah, & Anders, 1988).

Reports of how many hours' newborn infants sleep in a 24-hour period has changed over the years. Four decades ago European textbooks of pediatrics reported that newborns sleep 19 to 22 hours out of the 24-your day and this same statement can be traced back through numerous textbooks 50 years beyond that (Parmelee, Schulz, Disbrow, & Litt, 1961). At this time, there were no 24-hour observations of newborn infants. This is probably due to the fact that in most hospitals babies were awakened for feedings at regular intervals during the neonatal period. Researchers studied newborns in small numbers and reported differing amounts of time newborns slept ranging from 14.4 hours to 16.5 hours to 19 hours (Parmelee et al., 1961).

Parmelee et al. (1961) conducted the first study to use a large number of newborns. Data on 75 newborns found the average sleeping time for all the babies was 17 hours the first day, 16.5 hours the second day, and 16.2 hours the third day. The distribution of the total sleeping time for the 75 babies was as follows. The range on the first day was from 10.8 hours to 21 hours of total sleep time with the mean, median, and mode of the distribution all at 17 hours. On the second day the distribution was 10.5 hours to 23 hours and a mean of 16.5 hours, a median of 16.4 hours, and a mode of 15 hours. The distribution of the third day was from 11.4 hours to 21 hours with a mean of 16.2 hours, a median of 16.5 hours and a mode of 17 hours. More recent studies found that newborns do not sleep as much as reported previously. A study by Barnard (1995) found that newborns in the first month slept an average of 13.77 hours in a 24-hour period.

The ability of the infant to achieve diurnal regularity of waking and sleep is an important achievement of the first year of life. Studies show that infants begin to sleep

through the night by 6 months of age but may have periods of waking after settling (Keener, Zeanah, & Anders, 1988).

Infant sleep pattern and temperament are meshed with one another and are difficult to isolate. A group of researchers examined infant temperament and sleep patterns of 23 six-month-old infants. This study found that both mothers' and fathers' perceptions of temperament were related to objective measures of infant sleep-wake organization. Fathers' ratings were correlated with more sleep-wake variables than for mothers'. Infants who required frequent caregiving during the night were rated as significantly more difficult and arrhythmic by their fathers. These findings suggest that infant sleep habits are a more potent determinant of fathers' than mothers' perceptions of their six-month-old infants' temperament (Keener, Zeanah, & Anders, 1988).

This study also found that infants' sleep-wake habits are a continuum rather than distinct groups of "wakers" and "sleepers". This variation may represent developmental stages in the process of settling. It seems that these variations shape parental perceptions of the infant and may affect the parent-infant relationship as well (Keener, Zeanah, & Anders, 1988). Understanding the newborn's sleep pattern will assist the researcher in linking fatigue, depression, and stress to the single active duty mother.

ENVIRONMENTAL FACTORS

CHILD CARE

Child care arrangements are a source of conflict and guilt due to employment (Rankin, 1993). Frequently working mothers are concerned with their child's physical and emotional health related to child care. If child care is not available when needed this is a source of stress for the mother (Rankin, 1993). This high degree of stress that mothers experience in their child care roles is not surprising. There are intense feelings of obligation, guilt, and frustration over traditional role expectations. The mother's role

as the central care provider to promote attachment and basic trust is well described in the professional and lay literature. However, mothers are often faced with the financial or personal need to work outside the home, giving rise to child-related stressors. Lack of flexible hours and few options for child care arrangements magnify child-related stresses. Many mothers tend to view child care as a maternal role task and therefore their problem (Rankin, 1993). Single mothers do not have the luxury of viewing child care in any other way but as the maternal role task. Being the only care provider increases the child-related stressors for the single mother.

Affordable child care is essential to working mothers. Mothers may be discouraged from being in the work force by the lack of support for low cost child care. The U.S. Commission on Civil Rights Report on Child Care and Equal Opportunity for Women (1981) noted instances of women forced to turn down better paying and less sex stereotyped jobs to avoid exceeding the allowable income and thus losing eligibility for child care assistance (Albright, 1992). When child care is available and affordable it has positive effects on the mother's ability to work (Stolzenberg & Waite, 1984).

Single parent households earn 50% less than married couples and 45% of single parent families headed by a woman live in poverty (Bureau of Census, 1990). Thus, finding affordable child care is very difficult for this population. With welfare reform child care will became a major obstacle for many women who will be required to eventually leave welfare and join the workforce.

Military service members must be available for duty when and where the military needs them. Consequently, child care is an important issue for the single active duty mother. A survey done by Bowen and Orthner (1986) found that single Air Force members arranged for their child care by using home day care by a friend, neighbor, or adult relative in the home of the provider. Thus, despite the presence of Air Force operated child care centers at most bases, most single parents preferred making their own

arrangements. This was due to the inadequate hours of operation and questions about the quality of programs being offered to children by the Air Force centers.

CHALLENGES

The maternal role, far from being an intuitive feminine function, is a complex social and cognitive process that is learned (Rubin, 1967). While most women achieve the role successfully, approximately one to two million mothers' experience difficulty with the role, as evidenced by the number of abused or neglected children. Maternal role attainment occurs in progressive stages over a 12- to 15-month period during pregnancy and six months afterward (Rubin, 1977). The maternal role attainment process develops simultaneously with the mother's attaching to her infant, and each process affects the other.

PARENTING OUTCOME

The Nursing Child Assessment Satellite Training (NCAST) project is guided by Barnard's Parent-Child Interaction Model (1978). In this model, the infant is viewed as being in constant interaction with his/her environment. The environment contains both animate (human or animal) and inanimate (toys, furniture, and stairs) aspects. Therefore, the infant affects the environment and the environment affects the infant. Three major concepts form the basis of this theory: child, mother, and environment (Barnard, Eyres, Lobo, & Snyder, 1983). Child describes the characteristics of newborn behavior such as feeding and sleeping patterns, physical appearance, temperament and the child's ability to adapt to his/her caregiver and environment. Mother refers to the child's mother or caregiver and her important characteristics including psychosocial assets, personal concerns about the child, personal health, the amount of life change experienced with birth, expectations for the child and, most important, parenting style and adaptational skills. Environment represents the environment of both child and mother to include aspects of the physical environment of the family, the father's involvement and the

degree of parent mutuality in regard to child rearing. Four major characteristics of high-quality parent-child interaction are suggested by this theory:

1. sufficient repertoire of available behaviors, (i.e. infant is able to display signs of hunger, time out signals, and soothability, the parent is able to read these signs and respond appropriately),

2. the ability to produce contingent responses, (i.e. infant crying when hungry or uncomfortable and appropriate parental responses),

3. an access to rich, interactive content, (i.e. availability of appropriate stimuli and interaction with the available environment), and

4. a progression of adaptive developmental changes in interaction patterns (i.e. the specific adaptive patterns between parent and child must change over time).

Barnard, Hammond, Booth, Bee, Mitchell, & Spieker (1989) state that child characteristics such as prematurity or difficult temperament and parent characteristics such as depression or lack of newborn knowledge due to poor education can often effect the repertoire of available behaviors from which quality interactive abilities may be produced. The contingent responsiveness of parent to child and child to parent have been shown to be important in both child cognitive and social-emotional development. A richness of interactive content, including the amount of parental verbal stimulation, the range of available play materials, and the ability of the child to become involved with the parent in stimulation activities, is also related to cognitive and social skills. Finally, specific adaptive patterns of interaction change over time, with the child assuming more interactive responsibility as cognitive, motor, and social skills develop.

When a child's cues are difficult to interpret or if the parent perceives very little positive feedback when trying to interact with the child, then the parent-child adaptive process is likely to be interrupted, and eventually the child's developmental progress will

be influenced (Barnard et al., 1983). Further, if the parent does not respond to the infant's cues or the parent fails to alleviate the child's distress or to provide growth fostering situations, then the parent-child interaction system does not support the environment necessary for a positive developmental course.

In the present study the aspects of parent-child interaction and the ability of each participant to respond to the other are related to parent sensitivity of infant cueing and the infant's ability to appropriately display an understandable cue. This is dependent upon the infant's ability to appropriately transmit an understandable cue and the mother's ability to accurately read the cue sent by her infant.

Single active duty mothers are at risk for high levels of fatigue, stress, depression, sleep disturbances, and work interference with personal and family life. These factors may effect the mother's ability to appropriately respond to her newborn. This will place the parent-child interaction in jeopardy. Other issues that single active duty mothers face are child care problems and challenges. Child care may be chosen for convenience and not for the quality of child care provided. Single mothers must be the sole provider of home child care while maintaining household responsibilities.

Single postpartum active duty women are adjusting to their new role of motherhood. Newborn sleep patterns and temperament will effect this adjustment. Time is required for the adjustment to new sleep patterns and their infant's temperament. The six weeks of maternity leave military women receive may not be enough time for this adjustment, not to mention their body's adjustment to pregnancy and delivery.

CHAPTER 3: METHODOLOGY

This is a secondary analysis of data from the study "Fatigue following childbirth: Military family outcomes" conducted at Madigan Army Medical Center (Michelle Renaud and Gertdell Phyall, Principal Investigators). Funding source: Tri-Service Nursing Research Program, grant numbers N94-022 and N95-074, Department of Defense.

DESIGN

The proposed study was a descriptive correlational design. The original study was a two-group quasi-experimental design with repeated measures. Subjects were randomly assigned to experimental and control groups and stratified according to their active duty status into four subgroups: 1) mother active duty, spouse not; 2) father active duty, spouse not; 3) both parents active duty; and 4) single mother who is active duty. The original study examined mothers (T_1) 32-36 weeks prenatally, (T_2) 24-48 hours postnatally, (T_3) two weeks postnatally, (T_4) two months postnatally, (T_5) four months postnatally, and (T_6) six months postnatally.

Subjects in the control group received routine care. In the experimental groups an advanced practice nurse prescribed interventions related to sleep hygiene, sleep environment regulation and sleep consolidation for both the parent(s) and the infant.

SUBJECTS

A total of 392 subjects entered the study. The sample consisted of childbearing couples or single women who:

1. Were active duty or whose spouse was active duty.

2. Received prenatal care and planed to deliver at Madigan Army Medical Center (MAMC).

3. Anticipated remaining in the area for the next 9 months.

4. Were 32-36 weeks pregnant at the time of consent to participate in the study.

5. Were able to read and write English.

Women who met the above criteria were approached about the study in the Prenatal Clinic at MAMC.

Subjects for this secondary analysis were selected from the mothers and infants who completed the primary study. The present study used subjects from subgroup 4, single mother active duty. At the beginning of the study the number of single active duty subjects in the experimental and control groups were 23, at the end of the study the combined number was eight. This will be considered a pilot study due to the small sample size and will provide direction for further research.

SETTING

The study setting was conducted at MAMC in the Prenatal Clinic, OB Clinic, Postpartum Unit, and Well Baby Clinic.

INSTRUMENTS

HEALTH DIARY

A health diary was used to collect ratings of 43 psychological and physical symptoms. These symptoms were rated from zero (not present) to four (extreme). Several studies have addressed the reliability and validity of daily health diaries (Burman,

1995; Carp & Carp, 1981; Rakowski, Julius, Hickey, Verbrugge, & Halter, 1988; Richardson, 1994).

Beck Depression Index (BDI)

Depression was measured by the Beck Depression Inventory, Short Form (Beck & Beck, 1972). This scale asked respondents to select one of four descriptors of feeling intensity for each of 13 items. This instrument was initially developed with a sample of patients in psychiatric and outpatient services. The split-half reliability was .93. The BDI score has correlated significantly (.61) with clinician ratings of depression and with the Hamilton Rating Scale of Depression Scale. It has been used successfully with a sample of women during the first postpartum year (Owen & Cox, 1987). Because the items are not reflective of physical symptoms, this instrument is more appropriate for use with postpartum mothers than are other depression measures.

Nursing Child Assessment Sleep/Activity Record (NCASA)

Barnard (1978, 1980) developed the NCASA for use by parents in recording their infants' 24-hour sleep-wake behaviors. Parents recorded their infant's as well as their own sleep and awake hours. Participants were provided instruction on use of the form and their understanding was determined through return demonstration. Parental recording of infant sleep has been reported to have 90% agreement with sleep detected by video recording (Anders, 1978).

Visual Analog Scale-Fatigue (VAS-F)

Lee, Hicks, and Nino-Murcia (1991) developed the VAS-F to measure fatigue severity. The scale is composed of 18 items related to fatigue (13 items) and energy (5 items) which are scored on a 100-mm line. The fatigue items are anchored by words such as *concentrating is not effort at all* and *concentrating is a tremendous chore.* The energy items are anchored at each end by *not at all* or *extremely.* The instrument has

been normalized on healthy male and female subjects, aged 18-55 years and has been used to evaluate sleep disorders (Lee et al. 1991). Internal consistency scores (alpha) are all > .90 for morning and evening administrations in both groups (Lee et al. 1991). Validity was determined by the moderate correlation's between the VAS-F and Standford Sleepiness Scale and the Profile of Mood States (Lee at el. 1991). The VAS-F has been used with populations of pregnant and postpartum women (Lee & DeJoseph, 1992).

Interference Scale

Three portions of the Interference Scale measured the degree to which work interfered with personal and family life. Three subscales measuring both structural and emotional interference were used. Structural interference was defined as the extent to which the respondent's job makes it difficult to coordinate work and family roles. Emotional interference, or psychological spillover, is defined as the extent to which the job generates negative mood states at home. For all items, respondents indicate how frequently each item occurs on a five-point scale. Construct validity for the structural interference and psychological spillover indexes was established using principal axes factor analyses. Alpha reliability coefficients for the five subscales range from .70 to .91 (Hughes, 1987).

Nursing Child Assessment Teaching Scale (NCATS)

The NCATS is a 73-item observational tool used in the assessment of parent-child interaction. Parents are asked to teach their infant a standardized task. The NCATS includes four parent subscales (sensitivity to cues, response to distress, social-emotional growth fostering, and cognitive growth fostering) and two infant subscales (clarity of cues and responsiveness to parent). The scores of one-month-old infants have been shown to correlate significantly (r = .76) with expressive language at 36 months (Barnard, 1978). Additionally in eight-month old infants, the NCATS correlated (r = .66)

with the Bayley Scales of Infant Development Motor and Psychomotor Indexes at 12 months of age (Barnard, 1978). Scores are compared to published normative values.

EARLY INFANT TEMPERAMENT QUESTIONNAIRE (EITQ)

The EITQ is a 76-item questionnaire derived from the Infant Temperament Questionnaire (Carey & McDevitt, 1978) for use with younger infants (one-four months of age). The EITQ assesses the same nine infant temperament characteristics as the ITQ (activity, rhythmicity, approach/withdrawal, adaptability, intensity, mood, attention span, distractibility, and sensory threshold). Medcoff-Cooper, Carey, and McDevitt (1993) revised or eliminated several items from the ITQ to make them developmentally relevant for this younger age group. The tool was then standardized using 404 infants from one pediatric practice (Medcoff-Cooper, Carey & McDevitt, 1993). Parents indicate how frequently each item occurs using a six-point scale. Internal consistency ranged from .43 to .76 (Medcoff-Cooper, Carey & McDevitt, 1993). Norms for each item are available for 1-2 and 3-4 month old infants (Medcoff-Cooper, Carey & McDevitt, 1993).

DIFFICULT LIFE CIRCUMSTANCES (DLC)

The DLC is a 28-item screening tool that focuses on chronic family problems (Barnard, 1988, 1989). Yes/no responses are used to determine the occurrence of particular problems such as "*Do you have long-term debts?*" or "*Are you having regular arguments or conflicts with your present partner?*" Screening includes items regarding housing, finance, abuse, drug and alcohol problems, and problems with children. A score of six or above identifies a high-risk family with related concerns for parenting and child outcomes. The DLC score has been shown to be correlated with the nursing diagnoses of noncompliance, anxiety, powerlessness, disturbance in self-confidence, alteration in parenting, potential for violence, and ineffective coping (based on North American Diagnostic Classifications) (Barnard, 1988, 1989). DLC correlated with depression (BDI) r= .20-.59. Additionally the DLC is positively correlated with parent physical

symptoms and negatively correlated with support (range r= .20-.59). The DLC has demonstrated significant correlations with child outcome measures including the Bayley Scales of Infant Development (r= -.39), Preschool Language Scale (r = -.44), illness and accidents (r = .21), and Auchenbach Child Behavior Checklist (r = .22) (Barnard, 1988, 1989).

CHILD CARE RESOURCES QUESTIONNAIRE (CCRQ)

The CCRQ is a six-item instrument that describes the type of child care arrangements used, reasons for choosing care and satisfaction with care. The CCRQ has been used in prior studies of working parents (Killien, 1989).

DATA ANALYSIS

Descriptive statistics were used to determine measures of central tendency (mean) and dispersion (standard deviation). Differences between groups were tested using t-tests and analysis of variance. Tests of relationship included Chi-Square and Pearson Correlation.

CHAPTER 4: RESULTS

The purpose of the secondary analysis was to evaluate the impact of infant, parent, and environmental factors on parenting ability in the single active duty woman. This chapter summarizes findings for each of the ten research questions in this study. The single active duty women were randomized into control and experimental groups. The experimental group was cared for by an advanced practice nurse who prescribed interventions related to sleep hygiene, sleep environment regulation and sleep consolidation for both parent and the infant. At the beginning of the study 12 women were in the control group and 11 women were in the experimental group. A large attrition rate was seen at Time of Measure 6 (T_6) in this set of single active duty women. Eight women remained in the study at T_6. The data from the control and experimental groups were combined for statistical analysis when no difference between groups were demonstrated.

For the purpose of this secondary analysis, not all data from Time of Measures (prenatally and postnatally) used in the original study "Fatigue Following Childbirth: Military Family Outcomes" were used in this study. In most cases, data is presented overtime and not combined. Data from the Time of Measures, Time 1 (T_1) (prenatally), Time 3 (T_3) (two weeks postnatally), Time 4 (T_4) (two months postnatally), Time 5 (T_5) (four months postnatally), and Time 6 (T_6) (six months postnatally) were included in this secondary analysis. Data from Time 2 (T_2) (24-48 hours postnatally) were not included.

DEMOGRAPHIC VARIABLES

The control and experimental groups were examined for differences by age, racial/ethnicity, education, and income. Using two-sample t-test for independent samples and Chi-Square, there was no statistical significance between the two groups in education and income. Differences were found between the two groups in mother's age at last

birthday. Tables 4.1 through 4.5 reflect these findings. Two-sample t-test found the control and experimental groups were statistically different in age with the control group being 3.94 years older. Upon examining the individual ages of each group, it was found that the control group had four subjects substantially older than the experimental group, (see Table 4.2). The racial distribution, education, and income for both groups were fairly homogenous. However, 17 of 23 (86%) subjects in the groups had an education beyond high school. Health and Human Services (1997) states that for family units of one, two, three and four the poverty guidelines are $7,890, $10,610, $13,330, and $18,770 respectively. The majority of subjects fell above the national poverty level. Tables 4.3, 4.4, and 4.5 summarize these results.

Table 4.1 Age of Mothers

	M	SD	Min	Max
Control Group (n = 12)	24.67*	3.28	19	31
Experimental Group (n = 11)	21.73	1.56	19	25

*groups differ at $p < .05$.

Table 4.2 Frequency Distribution of Mothers' Age

Age	Control Group (n = 12)	Experimental Group (n = 11)
19	1	1
20	1	1
21	0	2
22	1	5
23	0	1
24	2	0
25	3	1
27	3	0
31	1	0

Table 4.3 Ethnicity of Sample

Ethnicity	Control (n = 12)	Experimental (n =11)	Total
Afro-American	6	4	10
American Indian or Alaskan native	0	1	1
Caucasian	5	6	11
Hispanic	1	0	1

Table 4.4 Education

Education	Control (n = 12)	Experimental (n =11)	Total
High School or Equivalent	1	5	6
Vocational Training	1	3	4
Some College	9	3	12
Bachelor's Degree	1	0	1

Table 4.5 Income

Monthly Income	Control (n = 12)	Experimental (n =11)	Total
$000-$999	1	3	4
$1000-$1999	7	8	15
$2000-$2999	3	0	3

RESEARCH QUESTION #1

What is the level of fatigue experienced by single active duty women in the first six months postpartum as measured by the Visual Analog Scale-Fatigue (VAS-F)?

No statistical differences were found between the experimental and control groups, therefore the groups combined. Fatigue scores were examined at T_1 (prenatally), T3 (2 weeks postnatally, T_4 (two months postnatally), T_5 (4 months postnatally), and T_6 (six months postnatally). Five items on the VAS-F were reversed in order to yield unidimensional scoring. Fatigue varied directly with total score, highest possible is 180 and lowest possible is 0. Generally fatigue was highest at T_1 (prenatally) and T_4 (two months

postnatally) and was lowest at T_6 (six months postnatally). Small number of subjects at T_6 may influence results. In addition, this low fatigue score may be influenced by the amount of sleep subjects and their infants' were obtaining at this time point. Postnatally, subjects were obtaining the highest amount of sleep at T_6. Table 4.6 summarize the total fatigue scores at T_1 (prenatally), T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally).

Table 4.6 Total Fatigue Scores

		Postnatally			
	Prenatal	**2 wk**	**2 mo**	**4 mo**	**6 mo**
	T1	**T3**	**T4**	**T5**	**T6**
n	22	16	10	12	7
M	98.73	91.25	98.30	90.83	78.00
Min	54.00	38.00	60.00	43.00	51.00
Max	128.00	129.00	122.00	122.00	111.00
SD	20.47	27.38	21.91	23.12	21.36

Note. Maximum score = 180, Minimum score = 0.

Scores from each fatigue item (18 items, scored 0-10) were added across subjects to determine ranking of fatigue symptoms at T_3. T_3 was chosen because of interest in postpartum fatigue and number of cases available at this time of measure. Scores for what these subjects experienced of fatigue and other symptoms of fatigue (i.e. desire to lie down, bushed, and worn out) were quite highly ranked. "Not at all efficient" was ranked number two, which would be related to the symptoms of fatigue. At two weeks postpartum, subjects reported experiencing feelings of fatigue most often. These subjects have reflected that giving birth and providing newborn care is very taxing to their body at this time point. Table 4.7 reflects these findings.

Table 4.7 Ranking of Fatigue Items at T_3

Fatigue Item	Ranking
I have a tremendous desire to lie down	1
Not at all efficient	2
Extremely fatigued	3
Extremely worn out	4
Totally bushed	4
Extremely tired	5
Totally exhausted	6
I have a tremendous desire to close my eyes	6
Not at all lively	7
Extremely sleepy	8
Extremely drowsy	8
Not at all active	8
Not at all energetic	9
Not at all vigorous	10
Moving my body is a tremendous chore	11
Concentrating is a tremendous chore	11
Keeping my eyes open is a tremendous chore	12
Carrying on a conversation is a tremendous chore	13

RESEARCH QUESTION #2

What is the level of stress experienced by single active duty women in the first six months postpartum as measured by the stress symptoms from the Women's Health Diary?

The experimental and control groups were combined because no statistical group differences were found. The stress symptoms from the Women's Health Diary were examined at T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally). Small number of subjects at T_6 may influence scores. Each item of the stress symptoms scored 0-4. Total symptom score is the sum of item scores. This scale measures a minimal score at 1 and mild to moderate score at 2-3. It was discovered that most women reported a larger number of mild to moderate symptoms of stress than minimal symptoms. A frequency distribution of items was examined to separate the total number of minimal and mild to moderate stress symptom scores. The highest possible stress symptom score is 176. In general,

symptoms were higher at T_3 (two weeks postnatally) than T_4 (four months postnatally) and T_6 (six months postnatally). Small numbers at T_6 may be a problem with reporting data that reflects what is actually occurring in this population. Table 4.8 summarize the total stress symptom scores at each time point

Table 4.8 Total Stress Symptom Scores

	Postnatally			
	2 wk	**2 mo**	**4 mo**	**6 mo**
	T3	**T4**	**T5**	**T6**
n	16	10	12	7
M	53.50	43.60	46.58	45.86
SD	32	28.34	41.31	32.52

The stress symptom responses were analyzed for the top 15 reported symptoms at all four time points. With aggregation of total scores for all time points it was noted that a large spacing of scores occurred between the top five and the bottom ten stress symptom items. The number one stress symptom response was early morning awakenings. It is interesting to note that the majority of physical symptoms were in the bottom ten symptoms of stress. Several symptoms were ranked equally, thus several symptoms fell into the same rank. The first six items listed reflect common symptoms of depression (Wessman & Paykel, 1974). Table 4.9 summarize scores for all subjects' at all three time points for stress symptoms scored as mild to extreme.

Table 4.9 Top Stress Symptoms at all Time Points

Ranking	SOS/All Time Points
1	Early morning awakenings
2	Increased food intake
3	Fatigue/tiredness
4	Tension
4	Lonely
5	Night awakenings
5	Backache
5	Joint or muscle pain
5	Depressed/sad or blue
6	Anxiety
7	Irritable
8	Decreased desire to talk/move
9	Decreased sexual desire
9	Headache
9	Tearfulness/crying spells
10	Out of control feeling/overwhelmed
10	Impatient
11	Increased sleeping
11	Abdominal pain
11	Guilt feelings
11	Hopeless feelings
12	Rapid mood changes
12	Difficulty concentrating
13	Constipation
13	Anger
13	Desire to be alone
13	Bloating
14	Forgetfulness
14	Hot flashes/sudden warmth
14	Hostility
14	Nervous/jittery
15	Difficulty making decisions
15	Increased cold sensitivity
15	Sensation of weight gain

The top ranking symptoms at T_1 (prenatally), T_3 (two weeks postnatally), and T_6 (six months postnatally) are listed in Table 4.10. "Early morning awakening" and "fatigue/tiredness" are in the top three ranking at each time point. It is of interest that lonely is ranked number four at T_1 and ranked two at T_6. Having the responsibility of caring for a newborn does not preclude loneliness for the single mother. Several of the symptoms are consistent over time while other symptoms change. Subjects reported

"fatigue/tiredness", "night and early morning awakening" most often prenatally and two weeks postnatally while other symptoms such as "change in food intake", "lonely", "tension", and "anxiety" were reported at six months postnatally. The focus of the symptoms changed over time. Could the subjects feel awakening at night or early morning and fatigue are expected prenatally and soon after delivery but by six months postnatally they should be sleeping better and getting enough rest? Therefore, they may feel uncomfortable reporting those kinds of symptoms at six months after delivery. So, instead they report symptoms that would be more expected of them such as tension and anxiety.

Table 4.10 Top Stress Symptoms at T_1, T_3, & T_6

Ranking	T1 Prenatal	Ranking	T3 2 Weeks Postnatally	Ranking	T6 6 Months Postnatally
1	Fatigue/tiredness	1	Early morning awakening	1	Increased/decreased food intake
2	Night awakening	2	Increased/decreased food intake	2	Early morning awakening
3	Early morning awakening	2	Night awakening	2	Lonely
4	Lonely	3	Fatigue/tiredness	2	Tension
5	Backache	4	Joint or muscle pain	3	Anxiety
		4	Backache	3	Depressed/sad
		5	Tension	3	Fatigue/tiredness
				3	Headache
				3	Out of control feelings/overwhelmed
				3	Night awakening

RESEARCH QUESTION #3

What is the level of depression experienced by single active duty women in the first six months postpartum as measured by the Beck Depression Index (BDI)?

No statistical difference was found between the control and experimental groups. Depression scores were examined at T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally). The results of

the total scores at each time point are listed in Table 4.11. There was a wide variation between the minimum and maximum scores in each category. In general, depression increased over time.

Table 4.11 Total BDI Scores at T_3, T_4, T_5, & T_6

	2 weeks Prenatally	2 months Postnatally	4 months Postnatally	6 months Postnatally
	T3	T4	T5	T6
n	16	10	12	7
M	4.50	6.70	6.83	7.71
SD	4.73	4.83	5.87	7.09
Min	1.00	2.00	1.00	0.00
Max	19.00	19.00	19.00	20.00

Frequency distribution of the scored statements at all time points is listed in Table 4.12. As the study progressed the attrition rate increased due to perhaps, the high demands placed on this group of subjects. The majority of subjects were in the normal range, with a few in the mild to mild-moderately depressed range. One subject was found to be in the moderate-severe range. No subjects were found to be in the severe range of depression. The number of subjects in the ranges of mild-moderate and moderate-severe increased at each time point. The percentage of depressed subjects was higher at T_5 (four months postnatally) and T_6 (six months postnatally). Perhaps, depressed women were more likely to stay in the study.

Table 4.12 Distribution of BDI Scores

Severity of Depression	2 weeks Postnatally	2 months Postnatally	4 months Postnatally	6 months Postnatally
	T3	T4	T5	T6
Depression	n =16	n = 10	n = 12	n = 7
Normal (0-9)	14	8	8	5
Mild (10-15)	1	1	3	1
Mild-Moderate (16-19)	1	1	1	0
Moderate-Severe (20-29)	0	0	0	1
Percent Depressed	14.3%	20%	66%	28.6%

RESEARCH QUESTION #4

How many hours of sleep in a 24-hour day is reported by single active duty women in the first six months postpartum as measured by the Nursing Child Assessment Sleep/Activity record (NCASA)?

The experimental and control groups were combined because no statistical differences in amounts of sleep between groups were found. A frequency distribution was used to examine the total hours of sleep in a 24-hour period at each sampling interval, T_1 (prenatally), T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally). The mean total hours of sleep the women received were highest before delivery. The total number hours of sleep were lowest at T_3. The minimum hours of sleep some of the subjects were obtaining was quite low (4-5 hours), this did not change over time. However, the mean number of hours of sleep changed over time. As stated previously, subjects received the most hours of sleep prenatally. This can be related to the last trimester of pregnancy in which the woman's body is larger than she is used to and with the added weight this adds to fatigue and

tiredness. As yet, there is no newborn to care for and she may be able to enjoy her sleep. Shortly after delivery, when the mother is adjusting to her newborn and her infant is not sleeping through the night, her sleep decreases. As she adjusts to her newborn and her infant is sleeping more at night, her sleep increases although, it is not at the prenatal level but most likely at the prepregnancy level. Table 4.13 summarize these findings.

Table 4.13 Mother's Total Hours of Sleep in 24 Hours by Self-Report

	T1 Prenatally	T3 2 weeks Postnatally	T4 2 months Postnatally	T5 4 months Postnatally	T6 6 months Postnatally
n	21	14	10	12	12
M	8.48	6.64	7.00	7.42	7.50
SD	2.04	1.60	1.15	1.51	1.51
Min	4.00	4.00	5.00	5.00	5.00
Max	12.00	10.00	9.00	10.00	10.00

RESEARCH QUESTION #5

What is the degree to which work interferes with personal and family life of single active duty women in the first six months postpartum as measured by the Interference Scale (IS)?

No statistical differences in disruption were found between the experimental and control groups, therefore the groups were combined for analysis. The item scores were totaled for analysis. Subjects did not complete the instrument in its entirety at any time point due to subject confusion about the instrument. Reasons for missing items were confusion as to need to skip certain questions or entire section, child not born yet, no spouse or partner, not working at Time of Measure, and misread directions to skip items in last section. Prenatally some subjects skipped questions about family responsibilities. Child items that were skipped included daycare and school events that were not relevant.

The instrument was subdivided into four sections: 1) job difficulties, 2) child effects, 3) family responsibility, and 4) feelings. Measures at T_1 (prenatally), T_3 (two weeks

postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally) was used for analysis of sections one, three and four. Measures at T_3, T_4, T_5, and T_6 were analyzed for section two. A high score indicates greater interference with personal and family life. Items that measured ≤ 3.00, indicating greater job interference, are summarized in Table 4.14.

Table 4.14 Reported Job Interference at ≤ 3.00

	T1 Prenatally (n = 22)		**T3 2 weeks Postnatally (n = 7)**		**T4 2 months Postnatally (n = 7)**		**T5 4 months Postnatally (n = 11)**		**T6 6 months Postnatally (n = 7)**	
Job Difficulties	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
Get everything done each day	2.818	1.220	3.000	0.816	-	-	-	-	-	-
Do as much as I would like around the house	3.000	0.926	-	-	-	-	-	-	2.857	1.464
Child Effects										
Spend as much time taking care of my child as I would like	-	-	2.667	0.516	2.714	1.113	3.000	1.342	-	-
Spend as much time doing this with my child as I would like	-	-	-	-	3.000	1.633	2.909	1.221	-	-
Have the kind of relationship with my child as I would like	-	-	-	-	2.857	1.574	-	-	-	-
Get things done for my child (shopping, etc.)	-	-	-	-	3.000	1.414	-	-	-	-
Family Responsibility										
Because of my job, I do not have as much patience with my child as I would like to have	-	-	1.500	0.837	1.833	1.329	1.500	0.850	1.286	0.488
When I get home after a typical day, I am too tired to do very much with my child	-	-	-	-	-	-	-	-	3.000	1.732

It was found at each time point reported that job interfered most with subjects' having little patience for their child. Also, job interfered with the ability to spend as much time caring for their child at T_3, T_4, and T_5.

RESEARCH QUESTION #6.

What is the temperament of four month old infants of single active duty women postpartum as measured by Early Infant Temperament Questionnaire (EITQ)?

Five subjects from each group for a total of 10 completed the EITQ. Therefore, there were an inadequate number of responses to meaningfully analyze these data. The EITQ is a 76-item questionnaire derived from the Infant Temperament Questionnaire (Carey & McDevitt, 1978) for use with younger infants (one-four months of age).

RESEARCH QUESTION #7

How many hours of sleep in a 24-hour day do infants receive at two weeks, two months, four months, and six months as reported by their mothers, measured by Nursing Child Assessment Sleep/Activity record (NCASA)?

No statistical differences in amount of sleep were found between infants in the experimental and control groups, therefore the groups were combined for analysis. A frequency distribution was used to examine the total hours of sleep in a 24-hour period at T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally). The lowest mean total hours of sleep the infants received were at T_4. Over time the mean amount of sleep varied very little. However, the minimum number of hours of sleep was quite low at two weeks of age. The hours of sleep overall are low when compared to other research completed on newborns. Table 4.15 summarize these findings.

Table 4.15 Infant Total Hours of Sleep

	T3 2 weeks Postnatally	T4 2 months Postnatally	T5 4 months Postnatally	T6 6 months Postnatally
n	14	10	12	7
M	12.50	11.90	12.50	12.57
SD	2.41	2.33	2.02	2.44
Min	6.00	8.00	9.00	9.00
Max	16.00	16.00	17.00	16.00

RESEARCH QUESTION #8

What are the child care arrangements used by single active duty women in the first six months postpartum as measured by the Child Care Resources Questionnaire (CCRQ)?

This questionnaire was answered at T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally). No differences in arrangements were found at any time points between the control and experimental groups, therefore, the two groups were combined for analysis.

In general, it was found infant care was performed by someone other than the subjects the majority of the time. Fathers performed very little newborn care. Only at T_3 and T_6 did any father care for his infant. Tables 4.16 and 4.17 summarize the findings of the CCRQ.

Table 4.16 CCRQ Responses

	T3 2 Weeks Postnatally		T4 2 Months Postnatally		T5 4 Months Postnatally		T6 6 Months Postnatally	
n	22		11		12		8	
Who provides child care								
	fr	%	fr	%	fr	%	fr	%
Anyone other than you care for your child	10	45	8	73	11	92	8	100
Father	1	0.05	0	0.0	0	0.0	1	13
Child <18yrs	0	0.0	1	9	0	0.0	0	0.0
Grandparent	2	91	3	27	2	17	2	25
Other adult relative	3	13	1	9	11	92	0	0.0
Unrelated adult	10	45	6	55	9	75	6	75
Where child is cared for								
Own home	12	55	4	36	3	25	2	25
Someone else's home	7	32	5	45	7	58	3	38
Child care center/nursery	1	5	2	18	3	25	5	63
Reasons for choosing care								
Cost	13	59	9	82	10	83	6	75
Convenient hours	6	27	6	55	6	50	4	50
Location	11	50	10	91	8	67	6	75
Quality of care providers	8	36	7	64	4	33	3	38
Quality of program	4	18	2	18	3	25	2	25
Quality of site/equipment	4	18	2	18	3	25	2	25
Personal preference	9	41	9	82	11	92	6	75
Availability	4	18	6	55	7	58	5	63
No other option	1	5	2	18	4	33	1	13
Other reasons	1	5	0	0.0	0	0.0	1	13

Note-fr = Frequency

Table 4.17 Hours/Week of Child Care Provided by Someone Other Than Mother

HOURS	T3 2 week Postnatally (n = 21)	T4 2 month Postnatally (n = 11)	T5 4 month Postnatally (n = 12)	T6 6 month Postnatally (n= 8)
.00	11	2	0	0
2-9	2	0	0	0
10-12	5	1	3	2
40-49	2	4	2	2
50-59	1	2	6	2
60-69	0	0	1	1
70-79	0	1	0	0
>80	0	1	0	1

RESEARCH QUESTION #9

What are the challenges faced by single active duty women in the first six months postpartum as measured by the Difficult Life Circumstances (DLC) screening tool?

A frequency distribution was used to examine the total occurrence of challenges women reported at each time point. The total possible occurrences was 28. Table 4.18 summarize these findings.

Table 4.18 Total Challenges of the DLC

	T 1 Prenatal	T 3 2 weeks Postnatally	T 4 2 months Postnatally	T 5 4 months Postnatally	T 6 6 months Postnatally
n	23	15	9	12	6
M	4.00	3.20	5.30	4.10	4.50
SD	2.71	2.57	3.57	3.34	3.15
Min	0	0	2	0	1
Max	11	10	13	11	10

No statistical differences in the number of challenges were found between the control and experimental groups. The mean value for challenges varied very little over time. A score of six or above identifies high-risk families with related concerns for parenting and child outcomes. As can be seen from the maximum number of challenges reported, a few

mothers are in this high-risk category. This places these mothers at risk for anxiety, powerlessness, decreased self-confidence, parenting problems, potential for violence, and problems with children (Barnard, 1988, 1989). The fewest challenges were reported shortly after delivery. This possibly is due to subjects' focus on caring for their newborn and little attention was left for anything else in their lives. Table 4.19 summarize the frequency of answers at all time points. This pooling of time points was done to get a feeling for the types of challenges experienced by these women as a whole in perinatal and postnatal periods.

Some items were either not answered or were marked as not applicable. The cause is speculated to be that some issues on this scale are of a sensitive matter for active duty military members. Another explanation may be that some items were related to a current partner and may have been omitted since there was no current partner. The areas of the DLC scale that were found to be most difficult for the women in this study are listed in order of most positive responses: long-term debts other than a house mortgage (55.4%), having problems with any one of your former spouses/partners (43.1%), has been hospitalized in the past year for any reason (40%), partner is away from the home greater than half the time (35.4%), your work interferes with family life (32.3%), trouble finding suitable/affordable housing (29.2%), and problems with credit rating (27.7%).

Table 4.19 Challenges-All Time Points*

	Yes	%	Missing and N/A Data
Conflict	11	16.9	10
Former Spouse	28	43.1	4
Jail	3	4.6	9
Away home	23	35.4	15
Debts	36	55.4	1
Credit	18	27.7	0
Job hunt	1	1.5	1
Your work	21	32.3	0
Partner Work	7	10.8	6
Landlord	0	0.0	0
Housing	19	29.2	0
Privacy	10	15.4	0
Relatives	4	6.2	0
Neighbor	9	13.8	0
Minor Illness	2	3.1	0
ETOH/Drug	0	0.0	1
Partner ETOH/Drug	2	3.1	8
Other ETOH/drug	0	0.0	3
Crime victim	12	18.5	1
Physical abuse	1	1.5	9
Verbal Abuse	12	18.5	12
Other Abuse	0	0.0	7
Hospitalized	26	40.0	2
No Phone	4	6.2	2
Child Abuse	0	0.0	3
School problem	0	0.0	3
Home Problems	4	6.2	4

Note-*65 total responses from the 23 subjects over the five time points
Missing data = Not completed by subject
N/A = Not Applicable to subject

RESEARCH QUESTION #10

What are the parenting outcomes of single active duty women at six months postpartum as measured by the Nursing Child Assessment Teaching Scale (NCATS)?

The parenting outcomes were examined by the results of the NCATS score. There were no differences between groups at T6 (six months postnatally). The NCATS was completed on twelve subjects. Table 4.20 summarize the results at T_6 (six months postnatally). There were 12 respondents on the NCATS but only eight in the last Time of Measure. An explanation for this is the NCATS was sometimes done at a clinic visit however, the remainder of data at that time may have been missing.

Table 4.20 Mother and Child NCATS Scores at T_6

	Subscale items		
	TP	**M**	**SD**
MOTHER			
Sensitivity to cues	11	8.75	1.06
Response to distress	11	9.08	2.07
Social-emotional growth fostering	11	8.00	1.86
Cognitive growth fostering	17	10.83	2.12
Mother total score	50	36.67	5.42
Child			
Clarity of cues	10	8.50	0.80
Responsiveness to caregiver	13	5.92	2.19
Infant total	23	14.42	2.43
Parent-child total	73	51.08	7.10
Contingence Scores Mother	20	13.67	3.47
Child	12	5.67	1.92

Note-TP = Total Possible

CHAPTER 5: DISCUSSION

This chapter will discuss how the various factors that impact the single active duty woman, prenatally and postnatally, effect the parent-child interaction. It will be shown that the parent, child, and environmental factors all effect one another.

In this study, the demographic variables of monthly income, ethnicity, and education of the experimental and control groups were similar. In general, no differences were found in the demographic variables. For these reasons, the experimental and control groups were combined for examination. The only statistical significance found between the experimental and control groups was maternal age. The control group was 3.94 years older than the experimental group. This age difference could have contributed to some of the findings of the present study. Older women may not have the stamina of younger women to rear a child alone and thus have more difficulty with single parenting. Perhaps, the opposite is true: older women's life experiences and maturity could be related to lesser difficulties with single parenting. Gardener (1991) found that older mothers experienced less fatigue than younger mothers.

Attrition was high in this group of single active duty women. At T_1 (prenatally) the control and experimental groups totaled 23. At each Time of Measure the numbers decreased, consequently, at T_6 the combined groups totaled eight. Reasons for attrition are some of the women in this study separated from the military and others left the study. One may hypothesize that the demands of a single new mother are great and that participating in such a complex study proved to be too much for the majority of these women. Also, one may question if any of these women chose to leave active duty due to the fact that the demands of their job interfered with their demands of motherhood. This combination of the military and mothering, competing for time, resources, and loyalty may have proven to be too much for this group of women (Segal, 1986).

PARENTING FACTORS

FATIGUE

The highest levels of fatigue were at T_1 (prenatally) and T_4 (two months postnatally). During pregnancy the woman's body undergoes many changes and stress. Exertion, stress, and physiological changes related to fluid shifts and metabolic processes contribute to the feelings of fatigue (Gardner, 1991). Active duty women are usually working within days of delivery. The American College of Obstetricians and Gynecologists (1988) recommends a maternity leave for healthy women of two weeks before delivery to rest. This can account for a higher fatigue level at T_1.

T_4 (2 months postnatally) was approximately two weeks after returning to work for military women. Two groups of investigators found that full recovery of functional ability after childbirth takes more than 6 weeks (Gjerdingen & Froberg, 1991; Tulman & Fawcett, 1991). In addition, the women in this study were still adjusting to the demands of work and child care roles. This could explain the higher fatigue level found at T_4. Further explanation for this higher level at T_4 is that at the same time their infants' mean amount of sleep was at the lowest level, 11.9 hours in a 24-hour day. This amount of sleep in 24-hours is quite low compared to findings of 13.3 hours and 16.2 hours by researchers who have studied neonatal sleep (Barnard, 1995; Parmelee et al., 1961).

Most frequently reported items of the Visual Analog Scale-Fatigue (VAS-F) were "tremendous desire to lie down", "not all efficient", "extremely fatigued", "extremely worn out", "totally bushed", and "extremely tired". These are descriptions of the subjective and objective components of fatigue as described by Hart and Freel (1982). It is not surprising that these women would be feeling these symptoms of fatigue. Gardner (1991) found fatigue increases with child care problems, the type of sleep alterations created by the care of a newborn, and less household help. The women in this study were single with little or no assistance from their infant's father. Discussion of child care and sleep components will be discussed in greater depth later.

Gardner (1991) reported that normal postpartum women who vaginally delivered are mildly fatigued. However, a marked increase in the fatigue/depression scores on the Beck Depression Index (BDI) occurred at two weeks postpartum. The BDI contains items measuring both fatigue and sleep alteration and, thus, is highly correlated with fatigue. From Gardner's (1991) study, it appears that two weeks after hospital discharge from a childbirth experience is a critical period for maternal recovery. Findings of this study agree with those of Gardner (1991), in that many of the factors studied (i.e. maternal and infant sleep, challenges, and fatigue-highest maximum reported symptoms) were most affected at T_3 (2 weeks postnatally).

STRESS SYMPTOMS

The women in this study reported a greater number of symptoms of stress in the mild to moderate range than in the minimal range with early morning awakenings ranked number one. This is not unexpected in view of a newborn in the home. Other top symptoms of fatigue/tiredness and tension can be related to how much assistance with newborn care, household duties the new mother is receiving from others, adjusting to a newborn, and being required to return to work after six weeks of maternity leave. Many of the stress symptoms were fatigue-related. Over time the reported stress symptoms increased. A similar theme appeared as the data were examined. Fatigue-related symptoms increased over time, depression increased over time, maternal sleep decreased postnatally, and challenges faced by this group of women were generally higher postnatally. It would appear that all of these factors effect one another. Present findings agree with researchers who have considered the role of perceived stress in the factors that precipitate postpartum depression (Grossman, Eichler, and Winickoff, 1980). According to this perspective, "the arrival of an infant adds to pre-existing strain, exceeds the individual's coping threshold, and leads to depression" (Cutrona, 1982, p. 493).

DEPRESSION

Depression scores were measured at T_3 (two weeks postnatally), T_4 (two months postnatally), T_5 (four months postnatally), and T_6 (six months postnatally). None of the women in this study were found to be severely depressed. The majority of subjects were found to be in the normal range at all time points (66.7%-87%). Depression was detected in 12.6% of the women (2/16) at T_3, 20% (2/10) at T_4, and 33.3% (4/12) at T_5 of the subjects in this study. At T_6 14.3% (1/7) of the subjects were found to be mildly depressed and 14.3% (1/7) were found to be medium-severely depressed. These findings are similar to what Acheson and Danner (1993) reported in postpartum women. Acheson and Danner (1993) report studies using screening instruments for major depression yield a prevalence of depression of 3% to 25% in the first six months after delivery.

Issues have been raised about the use of the BDI in postpartum women. Its reliability in detecting postpartum depression has been questioned because of its inclusion of symptoms that are considered normal concomitants of pregnancy and childbirth, such as fatigue and sleep disturbances (Arizmendi & Affonso, 1984). It has also been suggested that a certain percentage of depressed women are missed with the BDI because of its limited sensitivity in detecting minor depression and because diagnosable episodes of depression may be present among women who report subclinical levels of depressed mood (O'Hara, Newnaber, & Zekoske, 1984; Whiffen, 1988). This could imply that more women were depressed than was found in this study due to the BDI's limited sensitivity.

It can also be speculated that the reported fatigue-like symptoms of this sample of single active duty women are due to depression. Often depression is measured by somatic symptoms (Freden, 1972).

A mother who is depressed may not be emotionally available to her new infant. A new mother with depression may not seek the help she needs and this may negatively

impact the developing mother-infant interaction. Single female parents are more prone to depression than their married counterparts (Burden, 1986).

Why, then, were there not more women in this study who were more depressed? One must examine the women's support systems, which was not measured in this study. The military is similar to one big family that takes care of its own. It offers an impressive range of services and programs, such as child care services, parent education programs, single parent support groups, and family counseling services. One must also examine the women's personal support systems. Military members do not live and function in isolation. They have informal and complex relations with support systems, such as parents and other relatives to whom they are likely to turn to for support (Bowen & Orthner, 1986).

SLEEP

Women of this study reported highest mean hours of sleep prenatally and lowest mean hours of sleep at two weeks postnatally. The normal pre-pregnancy sleep patterns are not known. The postnatal sleep patterns may be typical to the women in this study's normal pre-pregnancy sleep patterns. The minimum and maximum hours of sleep ranged from 4 hours to 12 hours at T_1 (prenatally) to 5 hours to 10 hours at T_6 (6 months postnatally). The minimum hours of sleep some of these women were receiving are remarkable. However, the reported mean hours of sleep at two weeks postpartum is not an unexpected finding due to adjusting to a newborn in the home and in many cases, returning to work. A study by Lee and DeJoseph (1992) found that having a baby does deprive a new mother of sleep.

Night and early morning awakenings were ranked number two and three prenatally in the Women's Health Diary as stress symptoms. This finding is expected in view of research that found pregnant women reported frequent difficulty falling asleep in the past month and high frequency of midsleep awakenings (Lee & DeJoseph, 1992). In the

current study night and early morning awakenings were also ranked one through three at T_3 and T_6. Other studies corroborate these findings of disturbed sleep patterns and insufficient amounts of sleep (Karacan at al., 1969; Lee & DeJoseph, 1992). It appears this group of women may be getting some sleep but it is fragmented and perhaps not enough. This kind of fragmented and minimal sleep may be, in part, responsible for the fatigue these women were reporting. Potempa, Lopez, Reid, and Lawson (1986) have linked lack of sleep to fatigue, depression, and anxiety.

WORK INTERFERENCE

The subsections of the Work Interference scale were: 1) job difficulties, 2) child effects, 3) family responsibility, and 4) feelings. Women in this study reported the greatest hardship in the job difficulty subsection as "getting everything done each day" and "do as much around the house". In the child effects subsection it was reported the greatest adversity was in "spending as much time taking care of their child as they would like", and "spending as much time doing things with their child as they would like". Also, it was found in the feelings subsection that because of their job reported "not having as much patience with their child", and "was too tired to do very much with their child". These findings are supported by fatigue research that has been done in this area (Albright, 1992; Burden, 1986; Killien & Brown, 1987; Rankin, 1993; Staats & Staats, 1983).

Single mothers are managing child, household, and job demands alone. This places much strain on them and their roles as worker and mother (Miller, 1988). How does returning to work effect the quality of mother-child interactions? The infant needs to experience reciprocal, affectively involved interactions with the parent to become interested in social interactions and to develop attachment relationships (Ainsworth, Bell, & Stayton, 1972; Brazelton, Koslowske, & Main, 1974). Mothers who must return to work before they wish or feel ready to do so may become stressed and/or depressed and may be less able to provide this quality of sensitive responsive care (Silverstein, 1991).

INFANT FACTORS

TEMPERAMENT

The Early Infant Temperament Questionnaire (EITQ) is a lengthy instrument (76-item questionnaire) for use with infants 1-4 months of age (Carey & McDevitt, 1978), which may account for the fact that women in this study either omitted this tool or partially completed it. There were too few subjects to produce meaningful results. Much had been asked of these women already to participate in a study with so many instruments. It would be logical to assume that single active duty mothers have little time for participation in a complex study in addition to working full-time and caring for a newborn.

However, temperament is an essential variable in the parent-child interaction. No longer is it believed that an infant is born as a blank slate but rather a "preferred style of responding" known as temperament (Kurcinka, 1991). Individual differences in behavior can be seen among infants in the first few months of life that may challenge the mother's coping resources. It is important for parents to understand their child's temperament so they can work with their child in predicting their reactions to different situations (Carey, 1985).

SLEEP

In this study the infant's total hours of sleep were examined in a 24-hour period at four time points. Mother's report of sleep for this group of infants ranged from 6-12 hours in a 24-hour period two weeks postnatally to 9-16 hours six months postnatally. The minimum hours of sleep for a few of these infants were very low. This amount of infant sleep would impact maternal sleep and rest patterns. The mean total hours of infant sleep ranged from 11.90 hours at two months postpartum to 12.57 hours at six weeks postpartum with two weeks and four months postpartum measuring 12.50 hours. These hours of sleep are slightly lower than those in a recent study that reported

newborns averaged 13.77 hours in the first month of life (Barnard, 1995). However, Parmelee et al. (1961) found newborns slept an average of 16 to 17 hours in the first few days of life, which is greater than what was reported in the present study.

Other information regarding infant sleep patterns would have been useful to collect. What is the nighttime sleep-wake pattern in this group of infants? When is the longest sleep period? Is it between the hours of 12:00-5:00 am, corresponding to the mother's sleep pattern? For the infants who slept only six hours in a 24-hour period, when was their longest sleep period?

ENVIRONMENTAL FACTORS

CHILD CARE

Who Provides Child Care?

It was not unexpected to find that child care provided by someone other than the mother progressively increased from 45% (10/22) of the subjects at T_3 (2 weeks postnatally) to 100% (8/8) of the subjects at T_6 (6 months postnatally). Except, one may question why some subjects have someone else caring for their newborn at two weeks postpartum prior to returning to work. It was unexpected to find at T_4 (4 months postnatally), 27% (3/11) performed their own child care and at T_5, 8% (1/12) performed their own child care. Maternity leave is only six weeks in the military and these Times of Measure were at two months and four months postnatally. An explanation for this might be these women were using their personal leave time or they may have misunderstood the question. They may have understood the question to mean anyone caring for your child outside their home.

An unrelated adult provided the majority of child care. A grandparent or other adult relative performed child care less than half of the time. One subject reported a child less than 18 years old cared for her newborn. The need for child care is often the most

problematic issue for single parents, thus pressuring them to utilize less desirable child care providers.

The women in this study had little support from the fathers of their newborns. Fathers of the infants usually were not involved in child care, however, at T_3 (2 weeks postnatally) and T_6 (6 months postnatally) one father helped to care for his newborn child.

Where is child cared for?

At T_3 (2 weeks postnatally) the majority of child care was performed in the subject's own home. This progressively decreased at each time point from 55% (12/22) at T_3 to 25% (2/8) at T_6 (6 months postnatally). This 25% may indicate that single active duty mothers live with other single active duty mothers who share in child care responsibilities. Adversely, child care performed at a center or nursery progressively increased at each time point from 5% (1/22) at T_3 to 63% (5/8) at T_6. Child care performed in someone else's home ranged from 32% (7/22) at T_3 to 64% (7/12) at T_5 (4 months postnatally). These findings are not surprising. What was surprising was that only one participant reported child care (4.5%) (1/8) was performed in a child care center or nursery at T_3. At two weeks of age this is relatively early for a child to be cared for by a center or nursery. Most day care centers will not enroll an infant until they are at least six weeks of age. Care away from home can be more difficult for the mother due to the extra travel, daily packing of infant supplies, maintaining infant supplies at the daycare facility, etc.

Reasons for choosing care.

Reasons for choosing specific care sites were diversified. The majority of subjects cited cost and convenience factors such as convenient hours, location, and availability as the reason for choosing care. Quality items such as qualities of care providers, programs, and site and equipment were cited less often as reasons for choosing care. Single parents

have unique needs with regard to the strain between work and family. Military single parents face even more unique needs. They face deployment, work-related travel, and non-routine work hours that may mean being called into work on a moment's notice. So, this may make the decision of where to place their child for care somewhat arduous. Quality items may take second place to being able to drop off their infant on a moment's notice.

CHALLENGES

It was found that debt other than a home mortgage was reported as the most problematic for these women (55.4%) across time. The majority of the women were enlisted and had a monthly income below $2000. Even for the most budget minded individual it would be difficult to manage a family and household with this income. Problems with credit rating were also reported as problematic (27.7%) across time, which corresponds with debt problems.

Women reported a large number of challenges as measured by the DLC. Although some military members may have a personal support system to rely on, many of these women have an inadequate support system and are away from home. They are transitioning to parenthood without the support of a husband. Family finances contributing to stress, and the strain of combining work and caring for a young infant may further compound that stress leading to an increase in perceived challenges.

For women the juggling of role responsibilities and demands take a toll on their health. Women may find the only means to take time for themselves and for task accomplishments is to cut back their sleep. Lein (1984) found that in order to have time for self, women stayed up later and arose earlier than other family members. This creates a cycle of fatigue, less is accomplished, more efforts are exerted, increasing the women's fatigue (Lein, 1984).

A point of interest was several areas of sensitive issues: 1) someone in household other than you or your partner has a problem with alcohol or drugs, 2) physical, sexual or emotional abuse of self or children occurred or, 3) children experiencing home or school problems, were not answered by several women in this study. Although these women were assured anonymity, were these areas too sensitive and did these women fear reprisal? However, when a health care provider feels that the mother or her child may be in danger from physical or sexual abuse it must be reported.

PARENTING OUTCOMES

The instrument used to measure parenting outcomes was the Nursing Child Assessment Teaching Scale (NCATS). The NCATS is built on a model of parent-child reciprocity and mutual adaptation. Quality of interaction is a product of the degree to which the mother and child can adapt to each other's needs and limitations, given the resources that are available with their environment (Barnard, 1978).

The results of this study were compared to a predominately low-risk normative sample from the Nursing Child Assessment Satellite Training (NCAST) database (Barnard, 1978). NCAST identified clinically relevant cut-off scores to identify "worrisome" cases. The scores, from the NCAST database, reflect the 10^{th} percentile of the distribution of scores obtained by healthy full-term infants and their mothers who were 20 years or older and had 12 or more years education. The 10^{th} percentile has been established as the lower limit of the normal range (Achenback and Edelbrook, 1983).

The results of NCATS found the mother and child subscale and contingency items were all slightly lower than average but well above the "worrisome" level. Grouped scores from this set of women do not appear to be disturbing. These findings are summarized in Table 5.1. However, some of the individual scores were quite low. Based on the mean results, being a single active duty mother was not detrimental to the parent-child interaction but must be assessed individually.

Table 5.1 NCAST Teaching Scales: Comparisons of Study Results, Normative Data, and 10th Percentile Scores

	Study Data		Normative Data		Worrisome Score AA/Caucasian
Mother	**M**	**SD**	**M**	**SD**	**M**
Sensitivity to cues	8.75	1.06	9.16	1.62	-
Response to distress	9.08	2.07	10.04	1.78	-
Social-emotional growth fostering	8.00	1.86	8.99	1.83	-
Cognitive growth fostering	10.83	2.12	12.51	3.39	-
Mother Total Score	36.67	5.42	40.69	6.85	30/34
Child					
Clarity of cues	8.50	0.80	7.99	1.49	-
Responsiveness to caregiver	5.92	2.19	7.45	3.16	-
Infant Total Score	14.42	2.43	15.44	4.29	10/10
Parent-Child Total Score	51.08	7.10	56.13	8.88	42/47
Contingency Scores					
Mother contingency score	13.67	3.47	16.09	3.64	-
Infant contingency score	5.67	1.92	6.76	2.95	-

Note-AA = African American

IMPLICATIONS FOR NURSING

It is satisfying to say that although this group of single postpartum active duty women faced hardships solely due to their marriage status, this does not negatively impact the majority of women, nor their interaction with their infant at this time. However, the long-term effects of this are not known and may negatively impact the parent-child interaction. Some of these women were fatigued, stressed, and depressed prenatally and postnatally. The number and types of stresses identified cut across the personal and professional lives of the women in the present study. Fatigue-like symptoms, depression, inadequate hours of maternal sleep, adjusting to infant sleep and feeding schedules, child care related problems, and financial problems were not mutually exclusive. All act to influence the outcome of maternal stress.

The stressors identified by this group of women were related to what might be described as "overload" (Froberg, Gjerdingen, and Preston, 1986). Lack of time, lack of sleep, the organization of tasks within time limits, and the use of time affect all aspects of these women's lives. Because of competing demands for their time, working mothers must make choices and compromises to meet their multiple role expectations.

The high degree of stress that mothers experience in their child care roles was not surprising. There are intense feelings of obligation, guilt, and frustration over traditional role expectations (Rankin, 1993). The mother's role as the central care provider who promotes attachment and basic trust is well described in the literature. However, active duty mothers must return to work, giving rise to child-related stressors. Lack of flexible hours and few options for child care arrangements magnified child care stresses. The women in the present study chose convenience of child care over quality of child care. The need for quality child care with flexible hours for active duty parents must be addressed.

It seems that financial worries were the greatest in that: 1) job negatively impacted time spent taking care of and doing things with their child, 2) it increased loss of patience with their child and, 3) it resulted in the inability to get everything done each day around the house. These women were unable to stop working in order to spend more time caring for their infant. Even if these single mothers were able to separate from the military, the need to work would still be present. Perhaps, assistance with daycare or subsidized daycare is needed to address these issues.

Although, no women were found to be in the severe range of depression, one woman each was found to be in the moderate to severe range and the mild to moderate range, and two women were found to be mildly depressed across time. Women reported most fatigue/tiredness, early morning awakenings and night awakenings as symptoms of stress. Because maternal fatigue and depression may interfere with optimal parenting, these findings suggest that nurses caring for mothers with new infants should assess the

psychological and social support needs of the new mother and identify high-risk women. We as professionals should screen for depression at the mother's follow up postpartum appointments and refer for counseling when needed. It may also indicate that mothers may need to be assessed by their health care practitioner sooner than the expected six weeks postpartum visit. This suggests that at the first well child visit the Pediatric Nurse Practitioner could assess the mother and child as a unit considering infants are seen from 3-7 days old by the first well child appointment.

What can the military and health care professionals do to assist single active duty mothers? Perhaps the military could increase the length of maternity leave from 6 to 8 weeks, thus giving the new mother more time to recuperate from childbirth and adjust to the transition of parenthood. Financial counseling is available to active duty members but they may be unaware of its availability. Health care professionals can ensure that every single active duty mother is made aware of this benefit by providing pamphlets at well child or postpartum appointments. Health care professionals can also ensure that every woman who qualifies for the Women, Infants, and Children (WIC) Nutrition Program is enrolled and is receiving appropriate foodstuffs and counseling. Health care professionals can also refer high-risk women to counseling related to stress management, time management, and techniques for obtaining more sleep. Health care professionals can ensure all single mothers are aware of newborn classes and encourage their participation.

The military is recognizing that is must face the needs and wants of its *families* if it is to continue to attract America's "best and brightest" and keep its valued force. Through working on issues related to single mothers such as financial concerns, maternity leave, and depression concerns the military is actively starting to promote a positive environment for the single active duty mother.

LIMITATIONS OF THE STUDY

Two of these limitations have been previously explored and discussed so they will be briefly summarized. Randomization was used to obtain the control and experimental groups; however, a 3.28 year difference was evident between groups. This could impact the results of the study, although, this is a descriptive study and the groups were combined when no differences were found between groups. The high attrition rate of these subjects is another limitation of this study. The women who dropped out of the study may have been the most stressed and depressed which could have impacted the results.

Secondary analysis involves the use of data gathered in a previous study to test new hypotheses or explore new relationships. In a typical research project, more data are collected than the investigator actually analyses. Secondary analysis is efficient and economical because data collection is typically the most time-consuming and expensive part of a research project. However, there are limitations in working with existing data. In particular, if an investigator does not play a role in collecting the data, the chances are high that the data set will be deficient or problematic in one or more ways, such as in the sample used, the variables measured, etc. The researcher who is secondarily analyzing the data may continuously face "if only" problems: if only that had asked a question about a certain topic or had measured a particular variable differently (Polit & Hungler, 1995).

This study may be limited by its low statistical power. Statistical tests to determine the power of the sample size for this secondary analysis were not done. It is suspected however, that a sample of 23 women would not detect an adequate effect size. Therefore, it would be difficult to generalize these results to all single active duty mothers.

FUTURE RESEARCH

Recommendations for a future study are to conduct a study involving single active duty women using a much larger sample. It would strengthen the study to poll women of the present study who dropped out to determine exactly why they chose to quit the study and then address their needs in future research. This may promote a lower attrition rate.

One may examine how the military could better serve this population of single active duty mothers. This could be accomplished by surveying this population of women and identifying the problems they encounter, and then formulate interventions to assist them with the identified problems.

Also, a survey of supervisors in charge of making unit policies might identify where they stand on issues concerning single active duty mothers. The military leaves much up to the discretion of the supervisors at the unit level. In some units, active duty mothers are granted greater flexibility in their work responsibilities and schedules so that they are able to direct their attention to their children (Wahl & Randall, 1996).

Another study might examine the units' policies of the different units of the military such as hospital workers, flight line workers, administration workers, etc. to identify differences in policies related to the single active duty mother. By examining the individual supervisor's policies one may see a large variation in unit policy. Ultimately, a standard policy that applies to all units might be formulated. However, there are some in the military that believe pregnant women have no place in the military. So, any research singling out pregnant active duty women must be done sensitively.

BIBLIOGRAPHY

Achenback, T. M. and Edelbrook, C. (1983). Manual for the child behavior checklist and revised child behavior profile. USA: Queen City, Printers, Inc., 62-66.

Acheson, L. & Danner, S. (1993). Postpartum care and breast-feeding. Primary Care, 20(3), 729-747.

Albright, A. (1992). Attitudes toward working mothers. AAOHN Journal, 40(10), 490-495.

American College of Obstetricians and Gynecologists: Sterilization. (1988). American College of Obstetricians and Gynecologists Technical Bulletin #113. Washington, DC.

Anders, T.F. (1978). A longitudinal study of sleep-wake pattern development during the first year of like. Presented at the Academy of Child Psychiatry, San Diego, CA.

Ainsworth, M., Bell, S., & Stayton, D. (1972). Individual differences in the development of some attachment behaviors. Merrill-Palmer Quarterly, 18, 123-143.

Anthony, E.J. (1983). An overview of the effects of maternal depression on the infant and child. In H.L. Morrison (Ed.), Children of depressed parents: Risk, identification and intervention (pp.1-16). Philadelphia: Grune & Stratton.

Arizmendi, T.G. & Affonso, D.D. (1984). Research on psychosocial factors and postpartum depression: A critique. Birth, 11, 237-240.

Association of American Medical Colleges: Medicine and Parenting: (1991). A Resource for Medical Students, Residents, Faculty and Program Directors. AAMC, Publications Sales. Washington, DC,

Barnard, K. E. (1978). Nursing Child Assessment Satellite Training Project Learning Resource Manual. Seattle, WA: NCAST.

Barnard, K.E. (1980). How nursing may influence prevention of developmental delays. In E.J. Sell (Eds.), Follow-up of the high-risk infant newborn (pp. 213-230). Springfield, IL: Charles C. Thomas.

Barnard, K.E. (1988). Difficult life circumstances (DLC). Presented at the 3rd Biennial NCAST Institute, Seattle, WA.

Barnard, K.E. (1989). Difficult life circumstances: A resource manual for professionals using the difficult life circumstances scale. Seattle: NCAST.

Barnard, K.E. (1995). Nursing Child Assessment Satellite Training. Unpublished materials, University of Washington.

Barnard, K.E., Eyres, S., Lobo, M., & Snyder, C. (1983). An ecological paradigm for assessment and intervention. In T. B. Brazelton & B. Lester (Eds.), New Approaches to Developmental Screening of Infants. (pp. 199-217). New York: Elsevier.

Barnard, K.E., Hammond, MA, Booth, C.L., Bee, H.L., Mitchell, S.K., & Spieker, S.J. (1989). Measurement and meaning of parent-child interaction. In F. J. Morrison, C. Lord, & D P. Keating (Eds.). Applied Developmental Psychology (pp. 39-73). New York: Academic Press.

Beardslee, W.R., Bemporad, J., Keller, M.B., & Klerman, G.L. (1983). Children of parents with major affective disorder: A review. American Journal of Psychiatry, 140, 825-832.

Beck, A. & Beck, R. (1972). Screening depressed patients in family practice: A rapid technique. Postgraduate Medicine, 81-85.

Belle, D. (1982). Lives in Stress: Women and Depression. Beverly Hills, CA: Sage.

Bowen, G.L. & Orthner, D.K. (1986). Single parents in the U.S. Air Force. Family Relations, 35, 45-52.

Brazelton, T.B. (1961). Crying in infancy. Pediatrics, 29, 579-588/

Brazelton, T.B., Koslowski, B., & Main, M. (1974). The origins of reciprocity: The early mother-infant interaction. In M. Lewis & L. Rosenblum (Eds.), The effect of the infant on its caregiver. New York, NY: Wiley.

Burman, M.E. (1995). Health diaries in nursing research and practice. Image: Journal of Nursing Scholarship, 27, 147-152.

Burden, D.S. (1986). Single parents and the work setting: The impact of multiple job and homelife responsibilities. Family Relations, 35, 37-43.

Carey, W.B. (1985). Clinical use of temperament data in pediatrics. Developmental and Behavioral Pediatrics, 6(3), 137-142.

Carey, W.B. (1986). The difficult child. Pediatrics in Review, 8(2), 39-45.

Carey, W.B. (1990). Temperament risk factors in children: A conference report. Developmental and Behavioral Pediatrics, 11(1), 28-34.

Carey, W.B. & McDevitt, S. (1978). Revision of the infant temperament questionnaire. Pediatrics, 68, 735-773.

Carp, F.M. & Carp, A. (1981). The validity, reliability and generalizability of diary data. Exp Aging Res, 7, 281-296.

Crockenberg, S.B. (1981). Infant irritability, mother responsiveness, and social support influences on the security of infant-mother attachment. Child Development, 52, 857-865.

Cutrona, C.E. (1982). Nonpsychotic postpartum depression: A review of recent research. Clinical Psychology Review, 2, 487-503.

Cutrona, C.E. (1984). Social support and stress in the transition to parenthood. Journal of Abnormal Psychology, 93, 378-390.

Dubanoski, R.A. & McIntosh, S.R. (1984). Child abuse and neglect in military and civilian families. Child Abuse and Neglect, 8(1), 55-67.

Field, T.M. (1984). Early interactions between infants and their postpartum depressed mothers. Infant Behavior and Development, 55, 517-522.

Freden, L. (1972). Psychosocial Aspects of Depression. New York: Wiley.

Froberg, D., Gjerdingen, D., & Preston, M. (1986). Multiple roles and women's mental and physical health: What have we learned? Women and Health, 11, 79-96.

Gardner, D.L. (1991). Fatigue in postpartum women. Applied Nursing Research, 4(2), 57-62.

Gjerdingen, D.K. & Froberg, D.G. (1991). Predictors of health in new mothers. Society of Science Medicine, 12, 1399-1407.

Gjerdingen, D., McGovern, P., Chaloner, K., & Street, H. (1995). Women's postpartum maternity benefits and work experience. Family Medicine, 27(9), 592-598.

Googins, B. & Burden, D. (1987). Vulnerability of working parents: Balancing work and home roles. Social Work, 32(4), 295-300.

Grossman, F.K., Eichler, L.S., & Winickoff, S.A. (1980). Pregnancy, birth, and parenthood. San Francisco: Jossey-Bass.

Hart, L.K. & Freel, M.I. (1982). Fatigue. In C.M. Norris (Ed.), Concept Clarification in Nursing (pp.251-261). Rockville, MD: Aspen Publications.

Health and Human Services. (1997). Poverty guidelines. Federal Register, 62(46), 10856-10859.

Hopkins, J., Campbell, S, & Marcus, M. (1987). Role of infant-related stressors in postpartum depression. Journal of Abnormal Psychology, 96(3), 237-241.

Hughes, D. (1987). The inter-relationship between job characteristics, work/family interference, and marital outcomes. Unpublished doctoral dissertation, University of Michigan, Ann Arbor.

Karacan, I., Williams, R.L., Hursch, C.J., McCaulley, M., & Heine, M.W. (1969). Some implications of the sleep patterns of pregnancy for postpartum emotional disturbances. British Journal of Psychiatry, 115, 929-935.

Karl, D. (1991). The consequence of maternal depression for early mother-infant interaction: A nursing issue. Journal of Pediatric Nursing, 6(6), 384-390.

Keener, M.A., Zeanah, C.H., & Anders, T.F. (1988). Infant temperament, sleep organization, and nighttime parental interventions. Pediatrics, 81(6), 762-771.

Killien, M. (1989). Returning to work: Impact on postpartum mothers health. Unpublished proposal.

Killien, M. & Brown, M.A. (1987). Work and family roles of women: Sources of stress and coping strategies. Health Care for Women International, 18, 169-185

Kinard, E.M. (1982). Child abuse and depression: Cause or consequence? Child Welfare, 61, 403-413.

Kline, N.S. (1974). From Sad to Glad. New York: Putnam.

Kroenke, K., Wood, D.R., Mangelsdroff, A.D., Meier, N.J., & Powell, J.B. (1988). Chronic fatigue in primary care: Prevalence, patient characteristics, and outcome. Journal of the American Medical Association, 260, 929-934.

Kurcinka, M. (1991). Raising your spirited child. New York: Harper Collins Publishers.

Lee, K. & DeJoseph, J. (1992). Sleep disturbances, vitality, and fatigue among a select group of employed childbearing women. Birth, 19, 208-213.

Lee, K., Hicks, G. & Nuno-Murcia, G. (1991). Validity and reliability of a scale to assess fatigue. Psychiatry Research, 36, 291-298.

Lein, L. (1984). Families without villains: American families in an era of change. Lexington, MA: Lexington.

Lyons-Ruth, K., Zoll, D., Connell, D., & Grunebaum, H. (1986). The depressed mother and her one-year old infant: Environment, interaction, attachment, and infant development. New Directions for Child Development, 34, 61-82.

Medoff-Cooper, B. (1995). Infant temperament: Implications for parenting from birth through 1 year. Journal of Pediatric Nursing, 10(3), 141-145.

Medoff-Cooper, B., Carey, W.B., & McDevitt, S.C. (1993). The early infancy temperament questionnaire. Developmental and Behavioral Pediatrics, 14(4), 230-235.

Miller, D.C. (1988). Not as fair as you think-The realities of working women. Administration in Social Work, 12, 130-132.

Montgomery, G.K. (1983). Uncommon tiredness among college undergraduates. Journal of Consulting and Clinical Psychology, 51, 517-525.

O'Hara, M.W., Newnaber, D.J., & Aekoski, E.M. (1984). Prospective study of postpartum depression. Prevalence, course, and predictive factors. Journal of Abnormal Psychology, 93, 158-171.

Owen, M. & Cox, M. (1987). Maternal employment and the transition to parenthood. In A.E. Gottfied & A.W. Gottfied (Eds.), Maternal Employment and Children's Development: Longitudinal Research. New York: Plenum Press.

Parks, P., Lenz, E., & Jenkins, L. (1992). The role of social support and stressors for mothers and infants. Child: Care, Health and Development, 18, 151-171.

Parmelee, A.H., Schulz, M.D., Disbrow, M.A. & Litt, M. (1961). Sleep patterns of the newborn. The Journal of Pediatrics, 58(2), 241-250.

Paykel, E.S., Emms, E.M., Fletcher, J., & Rassaby, E.S. (1980). Life events and social support in puerperal depression. British Journal of Psychiatry, 136, 339-346.

Pleck, J.H. (1983). Men's family work: Three perspectives and some new data. Work and Family pp.232-241. In Voydanoff, P., (Ed.). Mount View: Mayfield Books;

Polit, D.F. & Hungler, B.P. (1995). Nursing research: Principles and methods (5th ed.). Phlidelphia: J.B. Lippincott Company.

Potempa, K., Lopez, M., Reid, C., & Lawson, L. (1986). Chronic fatigue. Image, 18, 165-169.

Radke-Yarrow, M., Cummings, E. Kuczynski, L., & Chapman, M. (1985). Patterns of attachment in two- and three-year-olds in normal families and families with parental depression. Child Developmental, 56, 884-893.

Rakowski, W., Julius, M, Hickery, T., Verbrugge, L.M., & Halter, J.B. (1988). Daily symptoms and behavioral responses. Medical Care, 26, 278-295.

Rankin, E.A. (1993). Stresses and rewards experienced by employed mothers. Health Care for Women International, 14, 527-537

Resnick, P.J. (1969). Child murder by parents: A psychiatric review of filicide. American of Journal Psychiatry, 126, 325-334.

Richardson, A. (1994). The healthy diary: An examination of its use as a data collection method. Journal of Advanced Nursing, 19, 782-791.

Roberts, C. & McGovern, P. (1993). Working mothers and infant care. AAOHN Journal, 41(11), 541-546.

Rubin, R. (1967). Attainment of the maternal role; Part 1. Processes; Nursing Research, 16, 237-245; Summer.

Rubin, R. (1967). Attainment of the maternal role; Part 2. Models and referrants. Nursing Research, 16, 342-346; Fall.

Rubin, R. (1977). Binding-in in the postpartum period. Maternal child Nursing 6, 67-75, Summer.

Schumm, W., Bell, D., Rice, R., & Perez, M. (1996). Trends in single parenting in the U.S. Army. Psychological Reports, 78, 1311-1328.

Segal, M.W. (1986). The military and the family as greedy institutions. Armed Forces and Society, 13, 9-38.

Silverstein, L.B. (1991). Transforming the debate about child care and maternal employment. American Psychologist, 46, 1025-1032.

Staats, M & Staats, T. (1983). Differences in stress levels, stressors, and stress responses between managerial and professional males and females on the stress vector analysis-research edition. Issues in Health Care of Women, 5, 165-176.

Stolzenberg, R. & Waite, L. (1984). Local labor markets, children and labor force participation of wives. Demography, 21(2), 157-170.

Thomas, A., Chess, S., & Birch, H.G. (1968). Temperament and behavioral disorder in children. New York: New York University, 1968.

Tulman, L. & Fawcett, J. (1991). Recovery from childbirth: Looking back 6 months after delivery. Health Care Women International, 12, 341-350.

U.S. Bureau of Census. (1990). Work and family patterns of American women. Current population reports, special studies series P-23, no. 165. Washington, D.C.: US Government Printing Office, 11-33.

United States Commission on Civil Rights. (1981). Child Care and Equal Opportunity for Women. Clearinghouse Publication No. 67. Washington, D.C.: U.S. Commission on Civil Rights.

U.S. General Accounting Office. (1982). Army needs better data to develop policies for sole and inservice parents. Washington, DC.

Wahl, C., & Randall, V. (1996). Military women as wives and mothers. Women's Health Issues, 6(6), 315-319.

Wasserman, G.A., Green, A., & Allen, R. (1983). Going beyond abuse; Maladaptive patterns of interaction in abusing mother-infant pairs. Journal of the American Academy of Child Psychiatry, 22, 245-252.

Weissman, M.M. & Paykel, E.S. (1974). The Depressed Woman: A Study of Social Relationships. Chicago: University of Chicago Press.

Whiffen, V.E. (1988). Vulnerability to postpartum depression: A prospective multivariate study. Journal of Abnormal Psychology, 97, 467-474.

Zaffke, M.E. & Lee, K.A. (1992). Sleep architecture in a postpartum sample: A comparative analysis. Sleep Research, 21, 327.

Zahn-Waxler, C., Cummings, E.M., McKnew, D.H., & Radke-Yayyow. (1984). Altruism, aggression, and social interactions of young children with a manic-depressive parent. Child Development, 55, 112-122.