POSTPARTUM DEPRESSION: A COMPARISON OF
MILITARY AND CIVILIAN POPULATIONS

by

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APPROVAL

of a thesis submitted by

Brittany Jean Coburn

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citation, bibliographic style, and consistency and is ready for submission to the Division of Graduate Education.

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Brittany Jean Coburn

April 2010
DEDICATION

This work is dedicated to my supportive husband, Thomas Coburn, for his never ending patience and the arrival of my greatly anticipated son, expected in May.
I would like to acknowledge and thank all of those individuals that have made this thesis a reality.

To my committee members, Dr. Kathleen Schachman, Dr. Patti Holkup, and Dr. Justin Buls; thank you for all of your support, dedication, wisdom, and patience as I have progressed along this path pursuing my goals.

To the Physicians, Nurse Practitioners, Midwives, Nurses, and Staff associated with the OBGYN clinics allowing me to conduct my research in their offices and with their treasured patients; thank you for this opportunity to gain knowledge and insight regarding this special population of individuals.

To my family, thank you for all of your support, encouragement, and stability that you have provided while I have been chasing my dreams.
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ABSTRACT

After careful review of the literature, a gap exists regarding the prevalence of postpartum depression in the military population compared with the civilian population. It is currently estimated that postpartum depression affects 13% of the childbearing population and over 50% of cases go unnoticed. The purpose of this study was to determine if a higher prevalence of postpartum depression exists in women married to active duty military members compared with women married to members of the general population in rural northwestern Montana. A sample population of 27 women from rural northwestern Montana completed the Postpartum Depression Screening Scale (PDSS) and their results were compared with those from a comparative population of 54 women married to active duty military members from southern Georgia. The PDSS short form was used and consists of seven questions with a Likert type scoring. The possible scores ranged from seven to 35 and a score of greater than 14 indicated that the woman had symptoms of depression. Data were analyzed and the average score and the prevalence rate were determined for each population. The average score for the civilian population was 16.85 with a prevalence rate of 62.96% compared with the military population’s average score of 13.7 and prevalence rate of 50%. Demographic data was also collected and analyzed. The prevalence rate for the civilian population from rural northwestern Montana was greater than for the population of women married to active duty military members. Both populations had a greater than average prevalence rate. Possible limitations to the study include a small sample size, the data were collected from different time periods and different geographic areas, economic instability was increasing for the sampling of rural women, rural women were screened in the winter months, and there is limited research regarding the rural woman and postpartum depression.
CHAPTER 1

INTRODUCTION

The roots of depression in relation to childbirth are buried deeply. Hippocrates, in 460 BC, wrote that “agitation, delirium and attacks of mania” were produced by suppressed lochial discharge that was transported to the brain, which he called “puerperal fever.” (Leopold & Zoschnick, n.d.). Attempts were made to classify postpartum depression in the 11th Century by gynecologist Trotul of Salerno, in the 18th Century by Marce, and in the mid 19th Century by Esquirol who described it as “mental alienation of those recently confined and of nursing women,” (Leopold & Zoschnick, n.d.). The potential social stigma attached to depression of any form, including after giving birth can be a negative deterrent to obtaining help. Women’s fears of disclosing their true feelings may contribute to the lack of seeking care (Beck, 2001a; Records, Rice, & Beck, 2007).

The birth of a baby is generally viewed as a positive, exciting, life-altering event that is welcomed by all. Nicolson states that the birth of a baby is viewed as a gain and not a loss (Beck, 2002). However, many women experience symptoms after childbirth that the Diagnostic and Statistical Manual of Mental Disorder Text Revision, American Psychiatric Association (APA, 2000) relates to depression. Postpartum depression (PPD) is a debilitating disorder affecting women throughout the world and can be defined as “a nonpsychotic depression episode that starts in or extends into the postpartum period (Beck, 2002, p. 454). Studies suggest that approximately 13% of all women develop
postpartum depression (Beck, 2001b; Abrams & Curran, 2007). Studies also suggest that as many as 50% of PPD cases are undetected (Abrams & Curran, 2007).

**Purpose**

Postpartum depression has been studied in women in the general population and in limited studies with military members (O’Boyle, Magann, Ricks, Doyle, & Morrison, 2005). Preliminary results suggest that the prevalence of PPD is higher in active-duty military members than non-military populations (O’Boyle, Magann, Ricks, Doyle, & Morrison, 2005). However, data have not yet been compared between women married to active duty military members and women married to partners in the general population. The purpose of this study is to compare the prevalence of PPD in women married to active duty military members and women married to partners in the civilian population of rural northwestern Montana.

**Background and Significance of Study**

Studies suggest that depression afflicts 15% to 25% of the population, is twice as common in women, and the reproductive years exhibit the peak incidence (Beck, 2001a; Leopold & Zoschnick, n.d.). Leopold and Zoschnick acknowledge that childbirth is a major risk factor for mental illness and estimate the yearly economic burden of depression is $44 billion (n.d.). Although substantial debate continues regarding the initial time period PPD starts, it is generally viewed that PPD begins one month postpartum and may continue for up to one year (Abrams & Curran, 2007).
Postpartum depression carries major implications in relation to mother/infant bonding and attachment, altered family dynamics, risk of maternal suicide, and the potential for children of mothers with PPD to experience altered cognitive development (Driscoll, 2006; Records, Rice, & Beck, 2007). Significant risk factors are linked with developing PPD, Beck lists the top 13 as; prenatal depression, self-esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, history of depression, infant temperament, maternity blues, marital status, socioeconomic status, and unplanned/unwanted pregnancy (2001).

Varying levels of depression after childbirth exist; including the maternity blues, PPD, and postpartum psychosis. Maternity blues are often considered a normal phenomenon due to the prevalence of 40% to 80% in the general population and typically exhibit mild depressive symptoms (Leopold & Zoschnick, n.d.). Typical symptoms of PPD include sleep disturbances, changes in appetite, fatigue, unexplained sadness, feelings of worthlessness and hopelessness, and periods of uncontrollable crying (Abrams & Curran, 2007). Studies suggest that postpartum psychosis occurs at a much lower rate of less than one percent. However, its affects often capture media attention (Abrams & Curran, 2007). Common symptoms attributed to postpartum psychosis include delusions, paranoia, and hallucinations (Beck, 2002; Leopold & Zoschnick, n.d.) and in rare cases infanticide or severe physical harm is exhibited toward the children (Abrams & Curran, 2007).

According to Beck, healthcare professionals hold the key to ending the harmful myths of motherhood that are so abundant in society and therefore decrease the risk to the
mother’s mental health (2002). Reaching those at risk for PPD requires accurate assessment and early intervention. The first step remains identifying women at high risk for developing this mood disorder (Beck, Records, & Rice, 2006). According to Schachman, Lee, and Lederman (2004), unique challenges exist for women married to active duty military members with the birth of a baby and the transition to motherhood. These women not only experience the stressors that are inherent to all women during this transition, but also must face stressors innate to military life. Specific stressors that this population must face include lengthy and unpredictable periods of separation from family, frequent relocation and social disruption, and the effects of geographic isolation from extended family members. If women married to active duty military members are indeed at a higher risk for PPD, efforts must be initiated to assist those in this population.

Statement of the Problem and Research Question

Significant risk factors have been associated with the development of PPD, which could be described as internal and external stressors. The manner in which women process these stressors may influence the degree to which they are affected by PPD. Women married to the active duty military population have many internal and external stressors and a possibility of higher prevalence of PPD. The question remains: do women married to active duty military members have a greater prevalence of postpartum depression compared to women married to partners in the general population of rural northwestern Montana?
Beck has developed a midrange nursing theory specifically for postpartum depression. Her theory encompasses the core variable of PPD as “loss of control,” (Beck, 1993). She then uses four stages; encountering terror, dying of self, struggling to survive, and regaining control to describe the coping mechanisms used by the women.

**Loss of Control**

Loss of control is the basic psychological problem that women experience and Beck explained this as teetering on the edge of insanity (Lasiuk & Ferguson, 2005). Beck stated that women lose control over their emotions, thought processes, and actions, and attempt to cope with that problem using the four stages which are encountering terror, dying of self, struggling to survive, and regaining control (1993).

**Encountering Terror:** The initial stage encountered by women, generally occurring within the first few weeks after delivery, is encountering terror. In Beck’s study, mothers describe it as “going to the gates of hell,” and “your whole world turned upside down,” (p. 44). Beck identified three conditions that occur during this first stage: “horrifying anxiety attacks, relentless obsessive thinking, and enveloping fogginess” (p.45). Horrifying anxiety attacks were described by mothers who felt as if they were losing their minds. Relentless obsessive thinking was described as compulsive thoughts that would not quit. Enveloping fogginess was portrayed as an experience of loss of concentration, and at times, motor skills.
Dying of Self: Dying of self is the second stage of Beck’s theory and is explained as the dying of the mother’s normal self. This stage consists of three consequences: “alarming unrealness, isolating oneself, and contemplating and attempting self-destruction” (p.45). Alarming unrealness is described by women as no longer feeling like they were present, but robots going through life’s motions. One mother described it as “It’s very scary. You feel as though you are not the same person. You are afraid your children aren’t going to have you for a mother,” (p. 45). Isolating oneself involves mothers losing interest in previous goals, family, and friends. This consequence also involves mothers distancing themselves from others. This was described by one mother as “I had these really weird feelings towards my baby. I couldn’t be around him. He gave me anxiety as if he were something bad. I couldn’t walk past the door of his room without becoming anxious” (p. 45). The third consequence, contemplating and attempting self-destruction, involves the thoughts and actions of mothers resulting from their feelings of being failures. A statement given by one mother to describe this was, “I would go into my baby’s room and think, put the blanket over his head. He’s nothing. Then I’d start crying hysterically. I felt like the worst person in the world, the worst mother in the world. I felt tremendous guilt and just wanted to hurt myself” (p.45-46).

Struggling to Survive: The third stage details the pathways taken by mothers to survive. Beck states three strategies were utilized: “battling the system, praying for relief, and seeking solace,” (p. 46). Battling the system involves mothers seeking help from a system unprepared to deal with PPD. Many were turned away empty handed, their symptoms were belittled, and some were unable to bear the financial burden. An example
was one woman’s statement “I picked up my phone and called my obstetrician. He never returned the phone call. Three days later I called again and he told me there’s nothing he could do for me and not to waste my time coming there just to talk” (p. 46). Others sought help from God by praying for relief. The third strategy used was seeking out support groups.

Regaining Control: The fourth stage of Beck’s substantive theory of postpartum depression is regaining control. This stage encompasses three consequences:

“unpredictable transitioning, mourning lost time, and guarded recovery” (p. 47).

Unpredictable transitioning relates to the transition from mostly bad days with one or two good days to mostly good days with one or two bad days. Mourning lost time is the experience mothers have when they realize they will not get the time back with their babies that was lost to depression. One woman stated “I feel robbed of the first 6 months of my daughter’s life. I never really got to hold her as a baby and I feel cheated” (p. 47). In guarded recovery, it is revealed that mothers feared a relapse into depression could happen at any time.

Definitions

For consistency purposes, the following terms will be defined: depression, postpartum depression, postpartum psychosis, maternity blues, military wives, and rural northwestern Montana.

Depression: As defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM IV TR), depression is diagnosed when one meets five or more of the
following criteria: symptoms of depressed mood, lack of pleasure or interest in normal activities, sleep disturbance, appetite disturbance, loss of energy, agitation, feelings of worthlessness or guilt, diminished concentration, and frequent thoughts of death or suicide (American Psychiatric Association, 2000). The DSM IV TR does not distinguish between depression and postpartum depression.

**Postpartum Depression:** “A nonpsychotic depressive episode that starts in or extends into the postpartum period” (Beck, 2002, p. 454), which is defined as anytime in the first 12 months after delivery (Records, Rice, & Beck, 2007). It consists of any combination of the seven symptom categories including: sleeping/eating disturbances, anxiety/insecurity, mental confusion, loss of self, guilt/shame, emotional lability, and suicidal thoughts (Records, Rice, & Beck, 2007). For this study, PPD will be measured by the Post Partum Depression Screening Scale (PDSS), a “brief, easily administered, self report inventory designed to assess the presence, severity, and type of postpartum depression symptoms” (Beck & Gable, 2002, p.1).

**Postpartum Psychosis:** Mothers are severely impaired and suffer from hallucinations and delusions generally developing within the first 4 weeks after delivery and can linger for up to 90 days following delivery (Beck, 2002; Leopold & Zoschnick, n.d.). Postpartum psychosis is dangerous and generally requires that the mother be hospitalized as there is increased risk of infanticide and/or suicide (Leopold & Zoschnick, n.d.).
Maternity Blues: Mothers may exhibit depressed mood, irritability, anxiety, confusion, crying spells, mood lability, and disturbances in sleep and appetite starting 3 to 5 days after delivery and generally they resolve within 24 to 72 hours with supportive care (Leopold & Zoschnick, n.d.). Episodes lasting more than 10 days may be predictive of PPD (Maeve, 2006).

Military Wives: Women married to active duty military members.

Rural Northwestern Montana: Sparsely populated area found in Northwestern Montana with an average population density of one to 6.9 persons per square mile (U.S. Census, 2000).
To adequately address the question regarding if a higher prevalence of postpartum depression (PPD) exists in women married to active duty military members compared with women married to partners in the general population of rural northwestern Montana, a complete literature search was conducted and the literature was then analyzed. Cheryl Beck’s mid-range nursing theory regarding postpartum depression was used to guide the literature search (Beck, 1993).

Online databases such as Medline, ISI Web of Knowledge, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) were searched from the years of 2000 through 2008. The broad search term of postpartum depression (PPD) revealed 2,637 results from a combination search of all databases using the ISI. The selected keywords of postpartum depression, military, and marriage were used in combination to narrow the search, and are illustrated in Table 1.

Inclusion criteria used to further narrow the search was that the results had to be articles written in the English language. The inclusion criteria listed above resulted in 45 articles, which were again reviewed for exclusion criteria. Articles that focused on infant outcomes rather than maternal PPD (1), pregnant adolescents rather than pregnant adult women (1), fathers rather than mothers (5), relationships amongst mother and child or mother and father (10), parenthood (2), treatment options (2), sexuality levels of pregnant or postpartum women (2), and/or not applicable studies (2) were excluded.
Beck’s theory focuses on a loss of control as the embodiment of postpartum depression (Beck, 1993). To understand the loss of control, associated risk factors which may lead to PPD must be clearly recognized and understood. Symptoms expressed by women experiencing PPD must be identified to assist those in need. Understanding the coping mechanisms used by women and the prevalence of the disorder will allow for deeper understanding and reflection. Therefore, articles representing one or more of the four main themes, (risk factors of PPD, expressed symptoms, coping mechanisms, and prevalence of the disorder) were included in the literature review for a total of 22 articles.

An additional search was conducted using the combination of the key words postpartum depression and military and is illustrated in Table 1. The modifiers of articles written in the English language and published from 2000 to 2008 were again used. Three articles were identified and all three were included for a total article count of 25. Of the total included articles, four were military related, while one was found through the reference page of an included article.

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<th>Search Terms</th>
<th>Limits, if any</th>
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| 10/17/08      | All databases | Postpartum depression AND marriage AND risk | English, articles, all years | 45 | Some articles are too old, search too narrow by including risk | 10/16/08  
|               | CINAHL   | Postpartum depression AND militar* | | 4 | 3 are within the selected time frame | 3 |
| 10/17/08      | ISI Medline | Postpartum depression AND military | 2000-2008, abstract | 3 | SELECTED | 3 (same as above) |

Themes

Common Themes

Common themes were found throughout the articles, which then were used to further divide the articles into subcategories for analysis. The subcategories used were: the intent of the article, the screening scale used, and the time period of pregnancy when the women were screened. By further dividing the included articles, rigid analysis of the critical aspects that play key roles in PPD can be further identified and focused upon.

Intent of the Article: The intent of the articles was divided into the following four categories: risk factors, coping methods, prevalence, and symptoms. Articles may have addressed more than one category and could therefore fall into one or more categories.

Screening Scale: The articles were also reviewed and placed in categories based on the type of screening scale used to identify PPD. The five screening scale choices were the Postpartum Depression Screening Scale (PDSS), the Edinburgh Postnatal Depression Scale (EPDS), the Beck Depression Inventory (BDI), other, which includes a
category of questionnaires, interviews, and self-reporting measures, and no scale used. Certain articles used more than one type of screening scale and therefore each screening scale used was noted in the appropriate categories.

**Time Period:** The articles were again subdivided regarding the time the screening took place, either in the prenatal period or postpartum (postnatal) period. Certain articles utilized both time periods whereas other articles focused on only one time period. If both time periods were utilized, they were both noted.

Table 2 illustrates the division of the intent of the articles, the screening scale used, and the time period focused upon in each article.

### Table 2. Article Themes.

<table>
<thead>
<tr>
<th>Article</th>
<th>Risk Factors, Coping Methods, Prevalence, Symptoms</th>
<th>Screening Scale</th>
<th>Prenatal, Postpartum, Both</th>
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Table 2. Article Themes (continued).

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<th>Screening Scale</th>
<th>Prenatal, Postpartum, Both</th>
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<td>EPDS</td>
<td>Prenatal AND Postpartum</td>
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<td>PPDS</td>
<td>Postpartum</td>
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<td>Interview, Questionnaire (Other)</td>
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<tr>
<td>Caliskan, Oncu, Kose, Ocaktan, Ozdemir (2007)</td>
<td>Risk Factors</td>
<td>BDI</td>
<td>Prenatal AND Postpartum</td>
</tr>
<tr>
<td>Zelkowitz, Saucier, Wang, Katofsky, Valenzuela, Westreich</td>
<td>Risk Factors, Symptoms</td>
<td>EPDS</td>
<td>Prenatal AND Postpartum</td>
</tr>
</tbody>
</table>
Table 2. Article Themes (continued).

<table>
<thead>
<tr>
<th>Article</th>
<th>Risk Factors, Coping Methods, Prevalence, Symptoms</th>
<th>Screening Scale</th>
<th>Prenatal, Postpartum, Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mann, McKeown, Bacon, Vesselinov, Bush (2008)</td>
<td>Risk Factors, Coping Methods, Prevalence</td>
<td>EPDS</td>
<td>Postpartum</td>
</tr>
<tr>
<td>Downs, DiNallo, Kirner (2008)</td>
<td>Risk Factors</td>
<td>Personal History Questionnaire (Other)</td>
<td>Prenatal AND Postpartum</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Risk Factors:18</strong>&lt;br&gt;Coping Methods:4&lt;br&gt;Prevalence:10</td>
<td><strong>EDPS:13</strong>&lt;br&gt;BDI:2&lt;br&gt;PPDS:3</td>
<td><strong>Prenatal:1</strong>&lt;br&gt;Postpartum:23&lt;br&gt;Both:7</td>
</tr>
</tbody>
</table>

Results Related to Theoretical Framework

Beck has developed a mid-range nursing theory of PPD that focuses on loss of control and the stages that women pass through while suffering (Beck, 1993). She uses four stages to explain the theme of loss of control, which are encountering terror, dying of self, struggling to survive, and regaining control (Beck, 1993). Beck’s research relies on grounded theory and symbolic interactionism, which can be described as the approaches people use in reference to their situations, the interactions between them and the eventual changes the processes undergo (Beck, 1993). In this manner, one can appreciate the stages women proceed through while experiencing PPD, the interactions that take place either internally or externally with regards to PPD, and the changes that the women go through as they process all of the experiences related to PPD.

Encompassing a thorough understanding of PPD involves recognizing the risk factors, the expressed symptoms, the coping mechanisms used, and the prevalence of the disorder. Populations at greater risk may be identified if these variables are known.
Postpartum depression in the population of women married to active duty military members has yet to be studied and compared with PPD in women married to members of the general population.

Beck explains that each person is comprised of biological, sociological, and psychological components and is influenced by contexts within themselves and the surrounding environment (Maeve, 2006). Beck also ascertains that women typically experience prenatal and obstetric healthcare within a medical mold and are greatly influenced by the patriarchal ideology (Maeve, 2006). To begin to adequately understand PPD in special populations, it first must be assumed that each woman experiences individual symptoms and is using individual coping mechanisms to manage. At some point, the symptoms expressed, coping mechanisms used and the risk factors associated will overlap and researchers will begin to see patterns developing. Beck’s research has identified 13 risk factors that are typically witnessed across various populations (Beck, 2001). The 13 identified risk factors include: prenatal depression, self-esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, history of depression, infant temperament, maternity blues, marital status, socioeconomic status, and unplanned/unwanted pregnancy (Beck, 2001). Beck conducted a meta-analysis of 84 studies between the years of 1990 and 2000 to determine the relationship of the above listed risk factors and PPD (2001). Understanding the relationship of PPD to risk factors and coping mechanisms helps the researcher understand the prevalence. Women married to active duty military members are expected to exhibit many of the same identified risk factors, however, they may have a greater combination of the risk factors and effective
coping mechanisms may or may not exist. It is important to integrate Beck’s theory while reporting research to understand why certain factors are repeating themselves. It can also be used to make assumptions regarding possible reasons for increased stress and decreased coping mechanisms used in certain populations, such as women associated with the military.

Beck also constructed a screening scale to identify those with PPD, named the Postpartum Depression Screening Scale (PDSS) (Beck & Gable, 2001). Prior to the development of the PDSS, the Edinburgh Postnatal Depression Scale (EPDS) was the only screening scale designed specifically for this mood disorder, however it lacked all of the necessary requirements to fully and adequately screen for PPD (Beck & Gable, 2000). The EPDS questions 10 categories but fails to measure the following: “loss of control, loneliness, unrealness, irritability, fear of going crazy, obsessive thinking, concentration difficulty, and loss of self,” (Beck & Gable, 2000). Beck and Gable initiated a second study to validate the sensitivity, specificity, and positive predictive value of the PDSS and results indicated that the PDSS was ready and available for use in screening new mothers with appropriate sensitivity in scoring (Beck & Gable, 2000; Beck & Gable, 2001).

The studies involving risk factors in various populations were compared with Beck’s determined 13 risk factors and are listed in Table 3. The specific population studied is listed with its corresponding study. Similarities exist amongst the risk factors and Beck’s underlying theme of loss of control can be the baseline for each. Specific populations may have risk factors unique to them; however, they may have many of the
same risk factors that Beck has identified. Identifying the risk factors and coping mechanisms associated with a majority of populations can help understand the risk factors associated with specific populations and help identify the prevalence.

Table 3. Specific Risk Factors.

<table>
<thead>
<tr>
<th>Article</th>
<th>Population Studied</th>
<th>Specific Risk Factors</th>
<th>Beck’s 13 Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gurel, Gurel (2000)</td>
<td>Turkish women</td>
<td>Grand multiparity, short inter-pregnancy interval, low education level</td>
<td>Life stress, low socioeconomic status</td>
</tr>
<tr>
<td>Webster, Linnane, Dibley, Pritchard (2000)</td>
<td>Australian women</td>
<td>Low social support, personal history of mood disorder, past history of postnatal depression</td>
<td>Social support, history of depression, (prenatal anxiety)</td>
</tr>
<tr>
<td>Johnstone, Boyce, Hickey, Morris-Yates, Harris (2001)</td>
<td>Australian women (urban and rural samples)</td>
<td>Sociodemographic, personality, psychiatric history, recent life events</td>
<td>Socioeconomic status, prenatal depression, life stress</td>
</tr>
<tr>
<td>Small, Lumley, Yelland (2003)</td>
<td>Vietnamese, Turkish, Filipino immigrant women in Australia</td>
<td>Isolation, lack of social support and marital issues, physical ill health and exhaustion</td>
<td>Social support, marital relationship,</td>
</tr>
<tr>
<td>Rodrigues, Patel, Jaswal, de Souza (2003)</td>
<td>Indian women (Goa)</td>
<td>Decreased levels of practical help and emotional support, economic difficulties, poor marital relationships</td>
<td>Social support, socioeconomic status, marital relationship</td>
</tr>
<tr>
<td>Chee, Lee, Chong, Tan, Ng, Fones (2005)</td>
<td>Singaporean women</td>
<td>Poor emotional support, past history of depression, unplanned pregnancy, childcare, poor instrumental support post-natally</td>
<td>Social support, history of depression, unplanned pregnancy, childcare stress</td>
</tr>
<tr>
<td>Olshanshy, Sereika (2005)</td>
<td>American women with a history of infertility</td>
<td>Marital satisfaction, “divided self”</td>
<td>Marital relationship, self esteem</td>
</tr>
</tbody>
</table>
Table 3. Specific Risk Factors (continued).

<table>
<thead>
<tr>
<th>Article</th>
<th>Population Studied</th>
<th>Specific Risk Factors</th>
<th>Beck’s 13 Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green, Broome, Mirabella (2006)</td>
<td>Arab women</td>
<td>Not breastfeeding, giving birth to 1st child, poor self body image and view of weight, poor relationship with mother in law, older age at marriage</td>
<td>Self esteem</td>
</tr>
<tr>
<td>Rychnovsky (2007)</td>
<td>American military women</td>
<td>Fatigue</td>
<td>Life stress</td>
</tr>
<tr>
<td>Ho-Yen, Bondevik, Eberhard-Gran, Bjorvatn (2007)</td>
<td>Nepal women (Urban and rural samples)</td>
<td>Husband’s alcoholism, polygamy, previous depression, stressful life events, multiparity, smoking, depression during pregnancy</td>
<td>Marital relationship, history of depression, life stress, prenatal depression</td>
</tr>
<tr>
<td>Adewuya, Ola, Aloba, Dada, Fasoto (2007)</td>
<td>Nigerian women</td>
<td>Being single, divorced/separated, polygamous, previous history of stillbirth, perceived lack of social support</td>
<td>Marital status, social support</td>
</tr>
<tr>
<td>Caliskan, Oncu, Kose, Ocaktan, Ozdemir (2007)</td>
<td>Turkish women (Ankara)</td>
<td>Age, age at marriage, number of people living in the home</td>
<td>Socioeconomic status</td>
</tr>
<tr>
<td>Mann, McKeown, Bacon, Vesselinov, Bush (2008)</td>
<td>American women</td>
<td>Participate in organized religion less likely to have PPD</td>
<td></td>
</tr>
</tbody>
</table>

Data Management

The data compiled was placed into Table 4 for easy comparison. The articles were arranged in chronological order beginning in the year 2000 and ending in the year 2008.
The type of study design and purpose of each study is listed as well as the specific methods of analyzing the data. The sample size is indicated and the general findings of the study are listed in the final column.

Table 4. Studies that Meet the Inclusion Criteria.

<table>
<thead>
<tr>
<th>Author &amp; (Year)</th>
<th>Country</th>
<th>Study Design &amp; Purpose</th>
<th>Methods &amp; Sample Characteristics</th>
<th>Sample Characteristics</th>
<th>General Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glasser, Barell, Boyko, Ziv, Lusky, Shoham, Hart (2000)</td>
<td>Israel</td>
<td>Quantitative</td>
<td>EPDS</td>
<td>288 women</td>
<td>Psychosocial risk factors the most important</td>
</tr>
<tr>
<td>Gurel, Gurel (2000)</td>
<td>Turkey</td>
<td>Quantitative</td>
<td>Beck Depression Inventory</td>
<td>85 women</td>
<td>Risk factors should be identified and education and social support provided</td>
</tr>
<tr>
<td>Webster, Linnane, Dibley, Pritchard (2000)</td>
<td>Australia</td>
<td>Quantitative</td>
<td>Edinburgh Postnatal Depression Scale (EPDS)</td>
<td>901 women</td>
<td>PPD is recognized with psychosocial assessment during pregnancy</td>
</tr>
<tr>
<td>Small, Lumley, Yelland (2003)</td>
<td>Australia</td>
<td>Qualitative</td>
<td>Personal interviews</td>
<td>318 women</td>
<td>Cross-cultural similarities in associations of PPD</td>
</tr>
<tr>
<td>Rodrigues, Patel, Jaswal, de Souza (2003)</td>
<td>India</td>
<td>Qualitative</td>
<td>EPDS, narratives</td>
<td>39 women</td>
<td>Cultural factors play significant role in PPD</td>
</tr>
<tr>
<td>Author &amp; (Year)</td>
<td>Country</td>
<td>Study Design &amp; Purpose</td>
<td>Methods &amp; Sample Characteristics</td>
<td>Sample</td>
<td>General Findings</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>--------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Bugdayci, Sasmaz, Tezcan, Kurt, Oner (2004)</td>
<td>Turkey</td>
<td>Quantitative Prevalence of PPD in first 2 months compared with later periods</td>
<td>EPDS, home questionnaires (Postpartum)</td>
<td>1447 women</td>
<td>PPD prevalence substantial at all time periods in Turkish population</td>
</tr>
<tr>
<td>Schachman, Lee, Lederman (2004)</td>
<td>USA</td>
<td>Quantitative Intervention on prenatal and postpartum role adaptation in military wives</td>
<td>Prenatal Self-Evaluation Questionnaire, Personal Resources Questionnaire, Resilience Scale (Prenatal &amp; Postpartum)</td>
<td>91 women</td>
<td>Military wives possess unique strengths and needs and certain programs may be helpful</td>
</tr>
<tr>
<td>Edhborg, Friberg, Lundh, Widstrom (2005)</td>
<td>Sweden</td>
<td>Qualitative, Grounded theory How Swedish women with signs of PPD experience first months with child</td>
<td>USA (Postpartum)</td>
<td>22 women</td>
<td>Describe PPD in feelings of loss and change</td>
</tr>
<tr>
<td>O’Boyle, Magann, Ricks, Doyle, Morrison (2005)</td>
<td>USA</td>
<td>Quantitative Prevalence of depression among active duty military women</td>
<td>USA (Prenatal &amp; Postpartum)</td>
<td>82 women</td>
<td>Higher rates of PPD compared with non-military populations</td>
</tr>
<tr>
<td>Beck, Indman (2005)</td>
<td>USA</td>
<td>Qualitative Secondary analysis of psychometric</td>
<td>PDSS, DSM interview (Postpartum)</td>
<td>133 women</td>
<td>Identified a range of possible symptoms of PPD that clinicians should be alert for</td>
</tr>
<tr>
<td>Chee, Lee, Chong, Tan, Ng, Fones (2005)</td>
<td>China, Hong Kong</td>
<td>Quantitative Perinatal risk factors associated with PPD</td>
<td>Interview, questionnaire (Prenatal &amp; Postpartum)</td>
<td>559 women</td>
<td>Perinatal depression in Singaporean women is common</td>
</tr>
<tr>
<td>Author &amp; (Year)</td>
<td>Country</td>
<td>Study Design &amp; Purpose</td>
<td>Methods &amp; Sample Characteristics</td>
<td>Sample</td>
<td>General Findings</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
<td>------------------------</td>
<td>---------------------------------</td>
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</tr>
<tr>
<td>Olshanshy, Sereika (2005)</td>
<td>USA</td>
<td>Quantitative Predictors of PPD in previously infertile women from pregnancy to postpartum</td>
<td>Center for Epidemiologic Studies-Depression Scale (CES-D), Beck Depression Inventory II, Marital Satisfaction Scale, Silencing the Self Scale (Postpartum)</td>
<td>25 women</td>
<td>Additional research is needed but marital satisfaction and “divided self” are two significant factors</td>
</tr>
<tr>
<td>Goyal, Murphy, Cohen (2006)</td>
<td>EPDs</td>
<td>Quantitative, descriptive Incidence of PPD in Asian immigrant women &amp; effects of cultural factors</td>
<td>PDSS (Postpartum)</td>
<td>58 women</td>
<td>Asian immigrant group as likely to develop PPD as whites. Must screen for potential of PPD</td>
</tr>
<tr>
<td>Green, Broome, Mirabella (2006)</td>
<td>Abu Dhabi, United Arab Emirates</td>
<td>Quantitative Prevalence and factors of Arab women and PPD</td>
<td>EPDs, demographic questionnaires (Postpartum)</td>
<td>125 women</td>
<td>Risk factors identified for higher depression scores in Arab women</td>
</tr>
<tr>
<td>Rychnovsky, Beck (2006)</td>
<td>EPDs</td>
<td>Quantitative Measuring PPD in active duty military women</td>
<td>PDSS (Postpartum)</td>
<td>109 active duty military women</td>
<td>May experience higher rates of PPD than non-military population</td>
</tr>
<tr>
<td>Rychnovsky (2007)</td>
<td>EPDs</td>
<td>Quantitative, longitudinal prospective design Measuring fatigue in active duty military women after delivery</td>
<td>Fatigue Continuum Form (Postpartum)</td>
<td>109 active duty military women</td>
<td>Military women experience postpartum fatigue upon returning to work, more studies needed</td>
</tr>
<tr>
<td>Ho-Yen, Bondevik, Eberhard-Gran, Bjorvatn (2007)</td>
<td>Denmark</td>
<td>Quantitative, cross-sectional structured interview Knowledge of risk factors can improve health care workers recognition of depression</td>
<td>EPDs, interviews (Postpartum)</td>
<td>426 women</td>
<td>Known risk factors and traditional family structures may influence risk of PPD in women in Nepal</td>
</tr>
<tr>
<td>Author &amp; (Year)</td>
<td>Country</td>
<td>Study Design &amp; Purpose</td>
<td>Methods &amp; Sample Characteristics</td>
<td>Sample</td>
<td>General Findings</td>
</tr>
<tr>
<td>------------------------</td>
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<td>---------------------------------------------------------------------------------------</td>
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<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Huang, Mathers (2007)</td>
<td>Taiwan</td>
<td>Quantitative</td>
<td>EPDs</td>
<td>106</td>
<td>To meet needs of this population, culturally competent interventions need to be addressed</td>
</tr>
<tr>
<td>Adewuya, Ola, Aloba, Dada, Fasoto (2007)</td>
<td>Nigeria</td>
<td>Quantitative</td>
<td>EPDS, questionnaire, DSM (Prenatal)</td>
<td>180</td>
<td>Depression common in late pregnancy amongst Nigerian women and is correlated to family factors</td>
</tr>
<tr>
<td>Caliskan, Oncu, Kose, Ocaktan, Ozdemir (2007)</td>
<td>Turkey</td>
<td>Quantitative</td>
<td>Beck Depression Inventory and questionnaire (Prenatal &amp; Postpartum)</td>
<td>66</td>
<td>Certain risk factors apply to both groups</td>
</tr>
<tr>
<td>Zelkowitz, Saucier, Wang, Katofsky, Valenzuela, Westreich (2008)</td>
<td>Canada</td>
<td>Quantitative</td>
<td>EPDS (Prenatal &amp; Postpartum)</td>
<td>106</td>
<td>Women with risk factors more likely to develop PPD, those with support less likely</td>
</tr>
<tr>
<td>Fisher, Hammarberg, Baker (2008)</td>
<td>Australia</td>
<td>Quantitative</td>
<td>Telephone interviews and self-reported questionnaires (Postpartum)</td>
<td>183</td>
<td>Low rates of PPD risk factors with ART conception</td>
</tr>
<tr>
<td>Mann, McKeown, Bacon, Vesselinov, Bush (2008)</td>
<td>USA</td>
<td>Quantitative</td>
<td>EPDS (Postpartum)</td>
<td>307</td>
<td>Organized religious participation may be protective from PPD</td>
</tr>
<tr>
<td>Downs, DiNallo, Kirner (2008)</td>
<td>USA</td>
<td>Quantitative</td>
<td>Self-reported measures (Prenatal &amp; Postpartum)</td>
<td>230</td>
<td>Depressive symptoms and Body image satisfaction are factors for intervention to PPD</td>
</tr>
</tbody>
</table>
The selected concepts utilized to analyze the literature gleaned from the search include risk factors and/or coping mechanisms, prevalence of PPD, and PPD in the military population. These concepts were critically examined and compared with each other to reveal the direction and scope of the current literature. The following paragraphs discuss the interrelationships and/or lack of relationships of the chosen concepts in combination with each other.

**Risk Factors and/or Coping Mechanisms**

A total of 22 of the selected 25 articles examined risk factors or coping mechanisms used by women with PPD. Glasser et al. (2000) compared demographic, psychosocial and medical risk factors and listed the following as the most predictive risk factors linked or associated with PPD: a) a history of emotional problems, b) lack of social support, c) marital disharmony, d) depressive symptoms during pregnancy, e) and prolonged infant health problems. A study published in 2000 concluded that, of the risk factors thought to be associated with PPD, short inter-pregnancy intervals, low educational level and grand-multiparity were the most reflective of PPD and need to be identified during the antenatal period for appropriate care and follow up (Gurel & Gurel). A study conducted in Australia examined obstetric and non-obstetric risk factors of PPD and concluded that sociodemographic, personality, psychiatric history, and recent life events had a more significant effect on PPD than obstetric risk factors (Johnstone, Boyce, Hickey, Morris-Yates, & Harris, 2001). A further study that was conducted which identifies contributing factors to PPD recognized isolation, lack of support and marital issues, physical ill-health and exhaustion, family problems and baby related issues as the
most commonly associated contributing factors of PPD (Small, Lumley, & Yelland, 2003, p. 189). Many of the above listed risk factors could be considered either internal or external stressors to the mother’s system and may help healthcare providers identify those at risk for PPD.

Risk Factors and/or Coping Mechanisms Related to Prevalence of PPD: Seven of the included 25 articles focused on the risk factors and/or coping mechanisms of PPD and the prevalence of PPD in studied populations. A study conducted on Singaporean women reports the prevalence of depression as 12.2% and 6.7% prenatally and postpartum, respectively with the associated risk factors falling into the socio-cultural and psychosocial categories (Chee, Lee, Chong, Tan, Ng, & Fones, 2005). The specific factors include “poor emotional support, a past history of depression, unplanned pregnancy and perceived potential conflicts with relatives over childcare antenatally and dissatisfaction, poor instrumental support postnatally,” (Chee et al., 2005). A second study identified the prevalence and risk factors of Arab women in the United Arab Emirates, finding 22% of mothers in the depressive category at three months postpartum and 12.5% at six months postpartum (Green, Broome, & Mirabella, 2006). Identified risk factors associated with PPD include “not breastfeeding, giving birth to the first child, poor self body image and view of weight, poor relationship with mother-in-law, and an older age at marriage,” (Green, Broome, & Mirabella, 2006, p. 425). The third study discussed the prevalence and associated risk factors of PPD in Nigerian women (Adewuya, Ola, Aloba, Dada, & Fasoto, 2007). Of the 180 women studied, 8.3% met the criteria for diagnosis of a depressive disorder and the associated risk factors included
being “single, divorced/separated, polygamous, and having previous history of a stillbirth, and the perceived lack of social support,” (Adewuya et al., 2007).

Risk Factors and/or Coping Mechanisms Related to PPD in the Military Population: Four of the included articles focused on PPD in the military population while only one of those four discussed risk factors or coping mechanisms in relation to this specific population. Schachman, Lee, and Lederman (2004) studied specific interventions (Baby Boot Camp) used to facilitate internal and external resources, or coping mechanisms, in wives married to military service members. They discuss that not only does pregnancy and the postpartum period stress the new mother but stressors may be added by being married to an active duty military member (Schachman, Lee, & Lederman, 2004). Stressors mentioned include but are not exhausted to unpredictable periods of family separation that vary greatly in length, geographic isolation from prior support systems and family, and probable or possible relocations resulting in disruption of social systems (Schachman, Lee, & Lederman, 2004, p. 107).

Risk Factors and/or Coping Mechanisms Related to Beck’s Theoretical Framework: The included studies in this literature review only produced one study discussing risk factors and/or coping mechanisms with Beck’s Theoretical Framework. A study illustrating dimensions of PPD using Beck’s developed Postpartum Depression Screening Scale (PDSS) was conducted by Beck and Indman (2005). Of the measured outcomes, seven elements that new mothers used to explain themselves included “sleeping/eating disturbances, anxiety/insecurity, emotional lability, mental confusion,
loss of self, guilt/shame, and suicidal thoughts as measured by the PDSS,” (Beck & Indman, 2005, p. 569). Results of the administered PDSS reported that two of the most prominent components of PPD are anxiety and irritability, which fall under the emotional liability category (Beck & Indman, 2005). They suggested also that healthcare professionals must be constantly aware of a “range of symptoms” related to PPD because not all mothers will express the same symptoms, but each will be a unique summation (Beck & Indman, 2005, p. 573).

**Prevalence of PPD**

Ten of the 25 articles included in this literature review discussed prevalence of PPD in certain specific populations. The populations that were studied varied and included those from immigrant Vietnamese, Turkish and Filipino women in Australia (Small, Lumley, & Yelland, 2003), to Nigerian women (Adewuya, Ola, Aloba, Dada, & Fasoto, 2007), to American women (Olshansky & Sereika, 2005; Mann, McKeown, Bacon, Vesselino, & Bush, 2008; Downs, DiNallo, & Kirner, 2008). A study conducted in Mersin Province in Turkey concluded that the prevalence of PPD varies in each respective society but appears higher in the Middle East and other eastern countries compared with their western counterparts (Bugdayci, Sasmaz, Tezcan, Kurt, & Oner, 2004). This study reported that the prevalence of PPD is “21.1% at postpartum week 6 in Jerusalem, 17% at 1-3 months postpartum in Japanese women, 19% at 0-3 months postpartum in Taiwanese women, 17.8% on day 7 after delivery in the United Arab Emirates, and 22.6% in postpartum week 6 in Israel,” (Bugdayci et al., 2004, p. 65). The same study reported prevalence rates of 12-14% in Swiss and Icelandic populations and
concluded that the prevalence rates rise with time to 29% in their study of Turkish women (Bugdayci et al., 2004). Findings were reported of United Arab Emirate women expressing symptoms of PPD ranging from 12.5% to 22% from three to six months postpartum (Green, Broome, & Mirabella, 2006).

Prevalence of PPD Related to PPD in the Military Population: Two of the included studies discussed the prevalence of PPD and the relationship of PPD in the military population. It is indicated that PPD has been recorded in as many as one of every eight pregnancies in the United States, or 13% of pregnant women (Beck, 2001), and the rates may be double that for those included in the military population (O’Boyle, Magann, Ricks, Doyle, & Morrison, 2005). It has also been suggested that suicidal ideation occurs at a much greater level in this population (O’Boyle et al., 2005). The above mentioned study consisted of 82 women participants and of those, 24% had a positive screen on the Edinburgh Postnatal Depression Scale (EPDS) and suicidal thoughts were revealed in 11% of the screened population (O’Boyle et al., 2005). As of this study’s publish date, it was the only published study discussing the prevalence of PPD in the military population.

A second study included in this literature review indicated that approximately one half of the 109 active duty military women included in the study, illustrated either positive screening scores for PPD or positive screening scores for postpartum depressive symptoms (Rychnovsky & Beck, 2006). It is suggested that this specific population may be at a higher risk of PPD, and increased screening should take place to create the greatest benefit in this population (Rychnovsky & Beck, 2006). It is also recommended
that this specific population should be the focus of further research (Rychnovsky & Beck, 2006).

Prevalence of PPD Related to Beck’s Theoretical Framework: Rychnovsky and Beck’s study regarding active duty military women and the increased prevalence of PPD utilized Beck’s PDSS to determine results (2006). It discussed that the advantage of using the PDSS as opposed to the Beck Depression Inventory (BDI) or the EPDS, lies in the expression of the instrument allowing the multidimensionality of depression to be illustrated (Rychnovsky & Beck, 2006). The author’s stated that due to the lack of published studies using the PDSS within the military population, special attention was paid to the validity of the results and the inconsistent responding index (INC) was used, which indicated that the results were within the acceptable validity range for this population (Rychnovsky & Beck, 2006).

Postpartum Depression in the Military Population

Four studies were found that focus on PPD or symptomology in the military population. A study conducted on prenatal and postpartum military wives tested the effects of applying specific interventions to the maternal role adaptation (Schachman, Lee, & Lederman, 2004). The study concluded that “Baby Boot Camp strategies to enhance external and internal resources may have been successful in facilitating maternal role adaptation,” and increased development of such programs may assist this specific population by meeting the “unique strengths and needs of the childbearing military wife,” (Schachman, Lee, & Lederman, 2004).
An additional study was conducted on active duty military women to determine the prevalence of depression in the prenatal and postpartum periods. The study reported a positive depression screening rate in both prenatal and postpartum women that was double when compared to those reported for non-military populations and three times as high when related to suicidal ideation (O’Boyle, Magann, Ricks, Doyle, & Morrison, 2005). Limitations to this specific study state that the screenings were conducted at Fort Lewis in the time frame following the September 11, 2001 attacks when increased tension existed and many of the participants were “young, single and unmarried,” (O’Boyle et al., 2005, p.418). The study suggested that depression and suicidal ideation existed at significantly high rates for the prenatal and postpartum active duty military personnel and screening was recommended (O’Boyle et al., 2005).

Rychnovsky and Beck conducted a study consisting of 109 active duty military women and the prevalence of PPD and associated risk factors (2006). Their research suggested that PPD may exist at 6 weeks postpartum more frequently in active duty military women than in civilian women (Rychnovsky & Beck, 2006). The women were screened three times in the postpartum period, which resulted with scores of 42%, 39%, and 32%, respectively, illustrating significant symptoms of depression and scores of 10%, 15%, and 12%, respectively, had positive screening scores for depression (Rychnovsky & Beck, 2006). Rychnovsky (2007) conducted an additional study describing postpartum fatigue in active duty military women. It was concluded that upon re-entrance to the workplace, active duty military women continued to experience postpartum fatigue (Rynchovsky, 2007). Typically, military women are required to report back to active duty
at six weeks postpartum and may deploy at four months postpartum (Rynchovosky & Beck, 2006).

Gaps in the Literature

Numerous gaps exist in the current selection of literature and research available regarding PPD and the associated risk factors and prevalence in certain populations. A gap also exists in the literature regarding risk factors and/or coping mechanisms used and the prevalence of PPD in the military population. Beck’s research can be of assistance through the use of her developed screening tool, the PDSS, to understand the prevalence of PPD in special populations. Literature currently does not exist comparing the prevalence of PPD in women married to active duty military members and women married to members of the general population. The results of this study will illustrate whether a difference exists in the prevalence of PPD between the two aforementioned groups.

As mentioned before, it is estimated that 50% of PPD cases go undiagnosed (Beck & Gable, 2000). It has also been reported that the duration of this mood disorder lengthens, typically longer than six months, due to the length of delay of diagnosis and appropriate treatment with antidepressants or psychological interventions (Beck & Gable, 2000). By identifying those at risk, healthcare providers can provide appropriate interventions in a timely manner and save those from falling through the cracks. Beck’s theory of PPD which focuses on the social psychological problem of loss of control could be avoided and the women whom would have been affected will no longer have to face “going through the gates of hell and back,” (Beck, 1993, p. 44).
CHAPTER 3

METHODOLOGY

Introduction

The primary goal of this study was to unearth the prevalence of postpartum depression in rural northwestern Montana and compare the results with the prevalence of postpartum depression in women associated with the military. A non-experimental comparative descriptive design was chosen for this study as the researcher felt it provided the most comprehensive method of analyzing the collected data. It allowed the researcher to compare selected variables within two or more groups from a selected population.

This chapter is divided into four major sections including: the sample, the instrument, the procedure, and the data analysis. The first section discusses the sample and also provides a detailed summary of the setting. A detailed description of the instrument follows, which provides an explanation of the psychometric properties of the tools. The procedure describing the methods of collecting data follows concluding with an explanation of how the data will be analyzed.

Sample

The sample for this study was selected from a group of women in Northwestern Montana who were six weeks postpartum. The six week postpartum visit was chosen because research illustrates that the peak occurrence of postpartum depression occurs one to three months after childbirth (Gurel & Gurel, 2000). A convenience sample was
chosen from among women who were attending their six week postpartum visit.

Convenience sampling is nonrandom sampling which includes whoever is available at the given time in the sample (Lunenburg & Irby, 2008). The inclusion criteria included women over 18 years of age, the ability to read and write English, and married. The sample also included only women with healthy babies who experienced no physical complications during the pregnancy or after the birth. Women were invited to participate from all races. Women who were not married were excluded from the study because the comparison group included women married to active duty military members and consistency must be maintained. The target sample size was a minimum of 20. Current estimates of postpartum depression occurring in 13% of the population would estimate that at least three participants would be experiencing postpartum depression.

The comparison group for this study was selected from a group of women married to active duty men in the military stationed in southwest Georgia. The inclusion criteria for the comparison group included women over the age of 18, the ability to read and write English, given birth to healthy babies without congenital abnormalities, and were not on active duty themselves. A convenience sample was obtained among women attending the eight week well child visit at a pediatric clinic with an estimated 660 patients at a military base. The sample was racially diverse with an estimated size of 20 participants. The data had already been collected for the comparison group (May 2008-May 2009).

**Setting:** The setting for this study included two OB/GYN clinics in rural Northwestern Montana. The first clinic consists of four board-certified OB/GYN’s and
two certified Nurse Practitioners/Midwives and serves a clientele population averaging 7,000. The providers indicated that an average of thirty live births occurred each month. The clinic accepts private insurance as well as Medicare and Medicaid.

The second clinic is served by one board certified OB/GYN and has an approximate clientele population of 1,200. The provider of the second clinic estimates that the clinic serves 10-15 postpartum women each month. The clinic also accepts private insurance as well as reimbursement from Medicare and Medicaid.

Protection of Human Rights: The researcher applied for approval to conduct the study from Montana State University-Bozeman Human Subjects Committee and Institutional Review Board after completing the National Institutes of Health (NIH) Office of Extramural Research web-based training course titled, “Protecting Human Research Participants.” The tutorial covered complex issues concerning the protection of human rights and bioethics in accordance with the law. The researcher was issued a certificate of completion (see Appendix A) and a copy of this certificate was provided to the Montana State University-Bozeman Human Subjects Committee prior to receiving permission to conduct this study.

Permission was also obtained from each of the providers associated with both OB/GYN clinics whose subjects of the study were patients. A letter of intent was addressed to each provider with a detailed explanation of the study (see Appendix B). Informed consent was obtained from all study participants in the form of the Subject Information Sheet for Participating in Human Subjects Research at Montana State University (see Appendix C). The subject information sheet was provided to all
potential subjects invited to participate in the study and also provided information about postpartum depression. The form encouraged study participants to speak openly with their provider about any feelings of sadness, anxiety, or felt as if they needed help. One brochure was included in the information packet discussing postpartum depression in detail and provided names and phone numbers of people or organizations that the women could call for help (see Appendix D).

The study participants were made aware that their responses to the survey were anonymous as they were not to include any identifying data and would not be shared with anyone, including their health care provider. The study participants were informed that their participation was voluntary and by returning the completed survey, informed consent had been given. They were also informed that there were no benefits to be obtained by completing the survey and their care would not be affected in any way by participating.

Instrumentation

Tool Selection: The Postpartum Depression Screening Scale (PDSS) (Appendix E) based on the midrange nursing theory of “Teetering on the Edge,” by Cheryl Tatano Beck (1993) was chosen to collect the data. The same theory forms the theoretical basis from which this study was founded. The PDSS was chosen as the selected tool for this study based upon the ease of administration, the appropriateness of the tool for the selected time frame after birth, and the validity and reliability associated with the accurate screening of postpartum depression. According to Beck and Gable (2002),
postpartum depression is identified in women who have a “high probability of meeting diagnostic criteria for a depressive disorder with postpartum onset, as defined by the Diagnostic and Statistical Manual of Mental Disorders, fourth edition,” (p.1). The survey was purchased from Western Psychological Services for use in this study.

The PDSS included a demographic data survey (see Appendix F). The study participants were asked to complete the demographic data in addition to completing the survey. The demographic data were used to assure that the inclusion and exclusion criteria were met. The demographic survey included 11 questions regarding: age, educational level, race, marital status, history of depression, treatment for depression, number of pregnancies, number of biological children, type of delivery, date of the baby’s birth, and method of feeding the baby.

Tool Description: The PDSS was designed to be administered to women who were at least two weeks postpartum and consisted of a 35 item self report with a Likert type five point format for scoring. The entire survey could be completed in five to ten minutes and yields a total score which allows the researcher to determine the level of severity of depressive symptoms. The higher the score indicates more depressive symptoms and warrants a referral for further diagnostic evaluation. Seven symptom areas were addressed which included: sleeping/eating disturbances, anxiety/insecurity, emotional liability, mental confusion, loss of self, guilt/shame, and suicidal thoughts (Beck & Gable, 2002). The PDSS was written at a third grade reading level and therefore could be easily understood.
The PDSS also has a short form that constitutes the first seven items of the full PDSS and can be completed in one to two minutes. The short form was chosen for this study to maintain consistency as it was the form utilized in the collection of military data. It was chosen for the military population to minimize the burden on the women as multiple forms were solicited. This form yields a short total score and is able to distinguish between the women who need a referral for a psychiatric evaluation and those who do not. It does not screen for major postpartum depression or assess the individual symptom content areas as described above. The short form also utilizes the five item Likert type format for scoring with the highest number indicating “strongly agree.” There are a total of 35 points and any score greater or equal to 14 signifies significant symptoms of postpartum depression. Question number seven queries the woman about the degree of suicidal thoughts and any answer greater than one requires immediate evaluation by a health care provider. The seven questions are as follows:

1) I had trouble sleeping even when my baby was asleep.
2) I got anxious over even the littlest things that concerned my baby.
3) I felt like my emotions were on a roller coaster.
4) I felt like I was losing my mind.
5) I was afraid that I would never be my normal self again.
6) I felt like I was not the mother I wanted to be.
7) I have thought that death seemed like the only way out of this living nightmare.
Tool Validity and Reliability: The validity of an instrument is imperative to the study design. Validity “is the degree to which an instrument measures what it purports to measure” (Lunenburg & Irby, 2008, p. 181). The first type of validity known as content validity, assures that the intended content area is measured. This was established for the PDSS by two expert rater studies that assessed the symptom content of postpartum depression used in the PDSS (Beck & Gable, 2002). Construct validity indicates how accurately the tool performs when measuring psychological states and consistently holds a strong association with two additional depression inventories, the Edinburgh Postnatal Depression Inventory (EPDI) and the Beck Depression Inventory II (BDI-II). Correlations of the PDSS Total score, the BDI-II, EPDI, and a structured clinical interview were calculated and the former two were strongly correlated (r = .81, p< .0001) with the latter two within one tenth. The findings suggest that the PDSS is highly associated with previous established depression inventories and also the clinical interview.

The reliability is the degree to which a tool consistently measures what it is intending to measure. Internal consistency is an important aspect of reliability and is measured by the coefficient alpha. It is generally agreed that a minimum coefficient alpha of .70 should be given for any measures of emotional construct (Beck & Gable, 2002). The PDSS reported a coefficient alpha of .96 which indicates reliability. The short form PDSS revealed .87 coefficient alpha, which is acceptable.

The sensitivity of the PDSS is the “probability that a woman who meets criteria for postpartum depression on the clinical interview will have an abnormal score on the
PDSS” (Beck & Gable, 2002, p. 43). Specificity refers to the ability of the PDSS to predict the probability of a normal score on the PDSS if a woman does not meet criteria for postpartum depression in the clinical interview. A PDSS cutoff score of 80 reveals 94% sensitivity and 98% specificity, which was significantly higher than one of the other screening scales commonly used. There is not any comparable data regarding the short form. The EDPS at an equivalent score reported 78% sensitivity and 99% specificity. When the cutoff score is changed on the PDSS, the specificity and sensitivity also change.

Procedure

The procedure for data collection was identical at each of the OB/GYN offices in Northwestern Montana. Each participant arrived at her six week postpartum visit and received a packet from the receptionist upon checking in. The packet included three items and one security envelope. The first item included in the packet was the invitation to participate. This item provided directions for completing the survey and discussed in detail the informed consent process. The participant was instructed not to sign this form as informed consent would be provided by completing the survey and returning it to the appropriate locked box. It also clearly delineated the procedure the participant could follow if she declined to participate in the study.

The second item was the actual PDSS survey, which also included the brief demographic survey. Participants were instructed to complete only the short form or the first seven questions. The form clearly distinguished the correct stopping place for the short form.
The third item that was included in the packet was a brochure discussing postpartum depression. Symptoms were discussed as well as information was provided encouraging the women to reach out for help. Phone numbers and contact information were provided and the women were highly encouraged to speak with their healthcare provider that day if they expressed any feelings of excess grief, anxiety, or feelings of loss.

A security envelope was provided with each packet for the participant to place their completed tri-folded survey into and then carefully seal. The envelopes would then be placed into a secure locked box behind the receptionist’s desk. This box was emptied by the researcher on Friday of each week at the conclusion of the day. The researcher was the only person with a key to the locked box. The researcher then recorded the results of each survey on a personal computer in a password protected file. The completed surveys were destroyed after each survey was carefully recorded. The researcher was the only person with passwords to access the data and the data was only shared with the research chair, Dr. Kathleen Schachman.

If the woman declined to participate, the instructions stated that she could fold up her survey without filling it out and place it in the drop box just as if she had completed the survey. It was felt that this manner would lead to less stress or possible embarrassment for the participant.

The data were then reviewed for inclusion and exclusion criteria and only those participants’ surveys who met the criteria were used. The survey information was
shredded from participants who were less than 18 years of age, were unmarried, or did not speak English.

Data Analysis

The frequency of postpartum depression in the general population of women of northwestern Montana was compared with the frequency of postpartum depression in women of the military population. The point prevalence of postpartum depression was determined by calculating the number of women with a score greater than 14 on the PDSS short form divided by the total number of women completing the survey. It was then compared to the point prevalence of the sample of military women. The data is illustrated via a bar graph.

A statistical analysis was performed utilizing a T-test comparison of means from the sample population with the control population. Each population’s average postpartum depression score was subject to a t-test to analyze if a statistically significant difference between the two populations existed. The significance level was set at 5% (p= 0.05).

Conclusion

The sample population consisted of approximately 20 women at their six week postpartum visit with their healthcare provider. All participants spoke English, were older than 18, and delivered a healthy infant with no significant medical conditions.

The study was designed to protect the rights of human subjects and each participant was given an information sheet discussing the study. Informed consent was obtained by each participant prior to involvement in the study. Approval for the study
was granted from the Montana State University-Bozeman Human Subjects Committee. Approval was granted from the appropriate health care providers whose patients participated in the study.
CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this study was to compare the prevalence of postpartum depression in the wives of active duty military members with wives in the general population of rural northwestern Montana. Descriptive statistics were analyzed to assess the collected data. An analysis of the demographic data was conducted in addition to the analysis of the results of the PDSS. The point prevalence of postpartum depression was calculated for each group followed by a T-test.

Sample

Civilian Group: Seventy five survey packets were distributed to the two OBGYN clinics in December of 2009, and completed surveys were collected weekly through March 2010. Data collection took place over a four-month period of time, during which approximately 100 women were seen for a six-week postpartum visit. Thirty one women who were attending their six week postpartum visit completed the Postpartum Depression Screening Scale (PDSS) and the accompanying demographic form. Four surveys were excluded as the participants were not married, resulting in a sample size of 27. The mean age of participants from northwestern Montana (civilian group) was 26.6 years (SD= 5.65) with a range of ages from 18 to 37 years. The highest level of educational background was collected resulting in one participant completing some high school
(3.7%), eight participants graduating high school (29.6%), seven participants with some college (25.9%), and 10 participants graduating college (37%). Twenty four participants were of the White ethnicity (88.9%), two were Hispanic (7.4%), and one was American Indian (3.7%). All 27 participants were married or partnered. Six participants (22.2%) indicated they were previously depressed and seven indicated they had previously been treated for depression. The mean number of pregnancies was 2.19 (SD= 1.33) with a range of one to seven total pregnancies. The mean number of living children was 1.84 (SD= 0.834) with a range of one to four living children. Twenty two women (81.5%) had a vaginal delivery as opposed to cesarean section. Sixteen women (59.3%) indicated they were breast feeding their new infant and six (22.2%) indicated they were using a combination of breast and bottle feeding.

Military Group: The comparative sample included results from 54 women married to active duty military members. The data for the comparative group was collected from May 2008 through May of 2009. Slightly different data were collected from the military population as a different researcher conducted the study. The mean age for the comparative group (military population) was 25.1 years (SD= 4.06) with an age range of 19 to 35 years. The educational background was assessed for the comparative group as well resulting in 14 participants graduating high school (25.9%), 20 participants with some college education (37%), and 18 participants with a college degree (33.3%). Forty seven of the participants were of Caucasian ethnicity (87%), four were Hispanic (7.4%), and three noted other (5.6%). All 54 participants were married. The mean number of living children was 1.72 (SD= 0.877) with a range of one to four living children.
Figure 1 illustrates the percentage of civilian and military women with the highest level of education completed. Figure 2 illustrates the percentage of women and their various ethnicities.

Figure 1. Highest Level of Education Obtained.
Postpartum Depression

Measures of Central Tendency: The PDSS short form was used and has a possible score range of seven to 35. Scores in the range of seven to 13 are considered normal adjustment. Scores in the range of 14 through 35 are considered to represent significant symptoms of postpartum depression. Responses for each group were evaluated to determine the mean, median, and mode. The mean score for the civilian group from rural northwestern Montana was 16.85 (SD= 6.48), the median was 16, and the mode was 22. The mean score for the military group was 13.70 (SD= 5.52), the median was 13.5, and the mode was 7. The results are illustrated in Figure 3. A t-test was conducted to determine if the group means differed significantly, with a significance level set at 5%.
(p=0.05). A two-tailed t test resulted p = 0.025, showing that the civilian group was significantly more depressed than the military group. (Figure 4).

![Figure 3. Measures of Central Tendency of Postpartum Depression.](image)

**PDSS Survey:** Analysis of each of the responses to each of the seven questions of the PDSS was also completed. The average score for each population was computed. The average response on question one for the civilian group was 2.52 whereas the military group was 2.49. Question two averages for the civilian and military population were 2.63 and 2.58 respectively. The averages for questions three were 2.96 and 2.98 for the civilian and military group. The civilian group average for question four was 2.63 and the military group average was 2.49. Question five averages were 2.37 and 2.36 for either group. The sixth question averages were 2.37 and 2.39 and the seventh question averages were 1.34 and 1.3 for the civilian and military group respectively. Both populations had
relatively consistent scores to each question on average. Figure 4 illustrates the sub-item averages.

![Figure 4](image)

**Figure 4. Sub-Item Averages for Questions 1-7 on the PDSS.**

**Prevalence Rate:** The participant’s scores on the PDSS were also analyzed and the prevalence rate for each group was determined. This was calculated by determining the number of women with a score 14 or greater and dividing by the total number of participants (27). The civilian group had a prevalence rate of 62.96% and the military group had a prevalence rate of 50%. Figure 5 illustrates the prevalence rates for the two groups.
Additional analyses were conducted utilizing the available demographic data. Six of the participants indicated that they had a previous history of depression. The data from the six participants were eliminated and new results were determined. The mean score on the PDSS without the six participants data was 15.95 (SD= 6.25) with a median of 15 and a mode of 17. Figure 6 illustrates the combined data in bar graph form.

The prevalence rate was also determined for the civilian group without a history of previous depression. The determined prevalence rate was 61.90%. A T test was conducted with the new data with the significance level again set at 5% (p=0.05). The results of the two tailed t test indicate a p value of 0.131, which is greater than the established significance level of 0.05.
Figure 6. Measures of Central Tendency of Scores on the PDSS.

Conclusion

Thirty two participants completed the PDSS in rural northwestern Montana and 27 met the inclusion criteria. Fifty four individuals were included in the military comparative group and met the inclusion criteria. The results of the data analysis indicate that the group of civilian participants from rural northwestern Montana exhibited higher mean PDSS scores and a higher prevalence of postpartum depression than the military comparative group. An additional analysis was done to determine if those in the civilian sample who reported pre-existing depression altered the findings. When these six subjects were eliminated the prevalence rate was decreased slightly to 61.90% from 62.96%. A decreased mean score of 15.95 which is 0.9 points less was observed for this population. Both civilian group prevalence rates are elevated over the military group with a prevalence rate of 50%. The T test demonstrated that the results calculated for the civilian
group and the military groups were statistically significant whereas the second T test calculation (civilian group minus previous depression participants vs. military) was not statistically significant.
CHAPTER 5

SUMMARY, DISCUSSION, AND CONCLUSIONS

Introduction

The purpose of this study was to expand the current knowledge regarding the prevalence of postpartum depression and stimulate additional research in this arena to identify and support those who are in great need of assistance. The preceding chapters have presented and analyzed data specific to what is currently known regarding postpartum depression in the civilian and military populations. Chapter Five consists of a summary of the study, a discussion of the findings, implications for practice, recommendations for further research, and the conclusions of this researcher.

Summary of the Study

It is estimated that postpartum depression affects approximately 13% of all postpartum women but as many as 50% of cases may go undetected (Beck, 2001b; Abrams & Curran, 2007). Limited research currently exists detailing postpartum depression in women associated with the military and the preliminary data that does exist suggests that the prevalence may be much higher than that of the general population (O’Boyle, Magann, Ricks, Doyle, & Morrison, 2005). The purpose of this study was to compare the prevalence of PPD in women married to active duty military members and women married to partners in the general population of rural northwestern Montana.
It has been suggested that specific risk factors have been associated with postpartum depression. These risk factors could be considered internal and external stressors, and it is assumed the military populations exhibit many of these risk factors (Schachman, Lee, & Lederman, 2004). How and if these stressors are processed may affect the degree of postpartum depressive symptoms that are experienced by women. The research question that was proposed states: do women married to active duty military members have a greater prevalence of postpartum depression compared to women married to partners in the general population of rural northwestern Montana?

A non-experimental comparative descriptive design was implemented for this study to comprehensively compare the variables within the selected groups. A convenience sample of 27 married, female participants 18 years or older from rural northwestern Montana comprised the sample group. Fifty four female participants aged 18 years or older married to active duty military men constituted the comparative group. Each group completed the Postpartum Depression Screening Scale (PDSS) short form developed by Beck and Gable (2002) as well as a demographic survey. The PDSS short form consisted of seven questions specifically chosen to assess postpartum depressive symptomatology in women who could benefit from further evaluation. Data analysis was conducted utilizing descriptive and inferential statistics.

**Discussion of the Findings**

A discussion of the research findings will follow beginning with the results of the PDSS and possible limitations of the study that may have affected the results. The study results in relation to the literature review will follow.
PDSS Scores and Possible Limitations: The Postpartum Depression Screening Scale (PDSS) was used to assess the postpartum depression levels in a sample group of 27 postpartum civilian women from rural northwestern Montana and a comparative group of 54 postpartum women married to active duty military members using the PDSS Short Form. The mean score of the PDSS was greater for the civilian population from rural northwestern Montana than the military population, 16.85 and 13.7 respectively. The mean score for the civilian group was above the cut-off point for depressive symptomatology, while the military group was approaching the cut-off point of 14. The t-test results were \( p = 0.025 \). The prevalence rate was 62.96% for the civilian group and 50% for the military comparative group, indicating that the civilian sample had a greater occurrence of postpartum depression than the military population.

The answers to the seven questions of the PDSS short form were also analyzed for each population. Participants had the option of selecting responses one through five for each question. The Likert type responses ranged from one, indicating strongly disagrees to five which indicated strongly agree. Both populations scored fairly consistent with the answers to questions one through six ranging from 2.34 to 2.98. The final question regarding suicidal thoughts also had consistent scores of 1.3 to 1.34. On average, the civilian population’s responses to each of the questions were slightly elevated over the military populations’ responses, accounting for the elevated prevalence rate of postpartum depression in the civilian population. Further research could be conducted on civilian and military populations utilizing the entire 35 questions of the PDSS. By
utilizing the long form, each category could be broken down and conclusions could be
drawn based upon the results of each population’s score in the individual symptom areas.

Limitations to this study existed and may have contributed to the aforementioned
results. The sample size of the civilian group from rural northwestern Montana was
relatively low, 27 participants, compared with the 54 participants from the military
comparison group. The data were collected in the winter months of November 2009
through March 2010 of rural northwestern Montana versus May 2008 through May 2009
in Georgia for the military population. Seasonal affective disorder typically arises in the
winter months and dissipates by spring/summer affecting up to 9.7% of the population
(Saeed & Bruce, 2009). This may contribute to the higher prevalence of women
experiencing postpartum depression. To maintain consistency, future studies could
collect data during the same time period.

It has also been suggested that seasonal affective disorder is more prevalent at
higher northern latitudes (Saeed & Bruce, 2009). Rural northwestern Montana falls along
the 48th parallel, one of the most northern areas of the United States. Consistency could
be maintained between civilian and military populations if both samples were taken from
the same geographic area.

Economic hardships have occurred in the more recent time period of late 2009
and early 2010 compared with prior sample period, possibly contributing to the increased
prevalence of postpartum depression. Preliminary data from the United States
Department of Labor Bureau of Labor Statistics indicates that Montana had a 6.7%
unemployment rate as of December 2009 (United States Department of Labor, 2010). Collecting data during the same time period may identify possible inconsistencies.

The definition of rural can be varied as many individuals have attempted to define this word in relation to area, population, and development. As defined in chapter one, rural northwestern Montana constitutes a sparsely populated area with one to 6.9 persons per square mile. It has been suggested by rural health research that rural dwellers view health with a unique perspective when compared with their urban counterparts. Many rural dwellers view health as the “ability to work, reliance on self and informal systems, and decreased willingness to use health care services provided by outsiders” (Weinert & Long, 1990). The participants from rural northwestern Montana were not assessed regarding their view of health or active participation and compliance with suggested healthcare routines. If multiple participants had a negative view of the available healthcare and therefore chose to pursue care rarely or on an emergent basis only, many of their needs may not have been met. The social stigma attached to postpartum depression may have prohibited many from seeking care or questioning themselves as to “what is normal.” Once again, sampling from the same geographic population may have alleviated many questions associated with the effect that rural living had on the study results.

Study Results and Literature Review: The literature review focused on articles with common themes including the intent of the article, the screening scale used, and the time period in relation to birth that the screening scale was administered. The intent of the article was broken down into four categories including risk factors of postpartum
depression, coping mechanisms used, prevalence of postpartum depression in various groupings, and symptoms expressed by those women experiencing postpartum depression.

Beck associates 13 risk factors with postpartum depression. They include prenatal depression, self-esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, history of depression, infant temperament, maternity blues, marital status, socioeconomic status, and unplanned/unwanted pregnancy (Beck, 2001). The demographic data gathered throughout this research allowed for some comparison. Previous depression was assessed for the civilian group in rural northwestern Montana and six participants (22%) indicated they had a previous history of depression. The results appear consistent with Beck’s research associating a previous history of depression with postpartum depression. Numerous other studies have indicated that previous depression is a risk factor for postpartum depression (Glasser et al., 2000; Webster et al., 2000; Chee et al., 2005; Ho-Yen et al., 2007; Zelkowitz et al., 2008; and Downs et al., 2008). Further analysis as to whether pre-existing depression affected the results did not allow for a robust comparison in the civilian population due to the small sample size.

All participants were married therefore no conclusion could be drawn in association with this risk factor. Self esteem, childcare stress, prenatal anxiety, life stress, social support, marital relationship, infant temperament, maternity blues, socioeconomic status, and unplanned/unwanted pregnancy were not directly assessed in either the civilian or the military group.
Highest level of education was assessed in both the civilian and military samples. A study by Gurel and Gurel (2000) indicated that low educational level was directly associated as a risk factor for postpartum depression. The civilian group had 3.7% of participants who had not graduated from high school, 29.6% graduated high school, and roughly 63% had some college or were a college graduate. All of the military group participants graduated high school with 70% going on to some college or receiving a college degree. The sample size of this researcher’s population was too small to analyze whether the results were consistent with Gurel and Gurel’s study which indicated lower educational status is a risk factor for postpartum depression.

Green, Broome, and Mirabella (2006) have associated giving birth to a first child as a risk factor of postpartum depression. Eight of the 27 women included in the sample of women from rural northwestern Montana had given birth to their first child. Five of these eight women had scores greater than 14 on the PDSS, indicating a 62.5% prevalence in these first time mothers. The prevalence of PPD in women who were not primiparous was no different, thus the findings of Green, Broome, and Mirabella (2006) were not supported. Data were not available for the population of women associated with the military in terms of number of children.

Prevalence of PPD was assessed in ten of the articles (Bugdayci, Sasmaz, Tezcan, Kurt, Oner, 2004; O’Boyle, Magann, Ricks, Doyle, Morrison, 2005; Chee, Lee, Chong, Tan, Ng, Fones, 2005; Goyal, Murphy, Cohen, 2006; Green, Broome, Mirabella, 2006; Rychnovsky, Beck, 2006; Huang, Mathers, 2007; Adewuya, Ola, Aloha, Dada, Fasoto, 2007; Fisher, Hammarberg, Baker, 2008; Mann, McKeown, Bacon, Vesselinov, Bush,
2008) included in the literature review. In this study it was determined that a higher prevalence of postpartum depression exists in the civilian population from rural northwestern Montana than in the military population. It has been suggested that postpartum depression is more prevalent in the Middle East and eastern countries than in the west and a study of Turkish women determined the prevalence to be 29.0% with a sample size of 1447 women (Bugdayci, Sasmaz, Tezcan, Kurt, and Oner, 2004). The same study indicated that the prevalence was lowest in the first two months postpartum and gradually rose throughout the following 12 months (Bugdayci et al., 2004). The data for this researcher’s study was collected at six weeks postpartum from the civilian population and indicated 62.9% exhibited depressive symptoms while the military population was collected at eight weeks postpartum and indicated 50% with postpartum depression. Additional research could be conducted following the same population throughout a period of 15 months to determine if postpartum depression prevalence increased in this U.S. sample over time as it did in the Turkish population.

A study of active duty pregnant military women determined that the prevalence of postpartum depression was 19% between seven and 10 weeks postpartum which is greater than the average of 13% (O’Boyle, Magann, Ricks, Doyle, and Morrison, 2005). They accounted for possible limitations to their study including young, unmarried women surveyed during wartime. The study also indicated that depression during pregnancy, specifically the second trimester, is significant in this population of women (O’Boyle et al., 2005). The results of this study are similar to the military population assessed in that the prevalence was high. A prevalence rate of 50% for the military population was
significantly higher than the estimated rate of 13%. Depression was not assessed during pregnancy for this researcher’s study, however, and may be a significant aspect to study in the future.

A study conducted of Asian Indian women in California determined that 52% exhibited either minor or major depressive symptomatology which could be predictive of high rates of postpartum depression with further diagnostic assessment (Goyal, Murphy, & Cohen, 2005). Specific Asian Indian customs were also assessed in relation to postpartum depression including arranged marriage, the high regard for male infants, and the tradition of confinement (Goyal, Murphy, & Cohen, 2005). The results are similar to those in the military population (50%), which also is a specific group with unique stressors.

The additional two criteria to differentiate the intent of the article, coping mechanisms and symptoms, were not assessed in either of the populations. Additional research could be conducted in this arena addressing both aspects.

**Implications for Practice**

The results of the study were contrary to expectations as the sample civilian population from rural northwestern Montana exhibited higher prevalence rates of postpartum depression than their military counterparts. It was theorized that the military population would have elevated levels of postpartum depression in association with their unique challenges. While the results were not as expected, it was determined that both groups have high prevalence rates of postpartum depression and therefore require an increased focus and determination from those in a position to treat.
The population of women married to active duty military members (comparison group) demonstrated a prevalence score of 50%. By comparison to the average 13% of the population with postpartum depression (Beck, 2002), more than three times the number of wives of military members have symptoms of postpartum depression and deserve to be acknowledged. It is important that these women do not suffer in silence. The risks to their psyche as well as their children’s growth and development increase while suffering with postpartum depression (Gurel & Gurel, 2000; Beck & Gable, 2001). It is imperative that these women are identified and treated to the best of the provider’s ability. Incorporating an understanding of those at higher risk will allow the provider to focus attention on screening and strive to detect women in need of help.

Civilian women in rural northwestern Montana are also at an increased risk of developing postpartum depression as the prevalence is 62.9%. This value is much greater than anticipated and possibly reflects a lack of knowledge regarding postpartum depression in the rural woman. Providers with patients who have given birth in the preceding 12 months need to assess for postpartum depression, especially if these women reside in rural areas. Increased screening should be conducted year round to study if an increased prevalence occurs in the fall and winter months as the prevalence is quite high in this study. Screening should occur with a specific screening tool such as the PDSS as opposed to only asking questions during the history and physical examination. Use of this tool can help facilitate a dialogue between the new mother and the provider allowing for open and perceived safe communication (Beck & Gable, 2001). Specific approaches may
be required to reach this population as this group of women may see themselves as resilient and are not accustomed to requesting or receiving help.

**Recommendations for Further Research**

Research needs to be continued in the arena of rural women and postpartum depression. The prevalence rate of 62.9% is unquestionably high and further research is required to ascertain the sustainability of this value. Rural postpartum women could complete the PDSS at 6 weeks, 12 weeks, 18 weeks, and 24 weeks postpartum from various rural counties throughout the country and the prevalence compared. A study conducted by Bugdayci et al. (2004) determined the prevalence of postpartum depression in a specific population at zero to two months, three to six months, seven to twelve months, and greater than 13 months postpartum. It was determined that postpartum depression was prevalent at each time period but increased with time for their sample of women (Bugdayci et al., 2004). It is also imperative that research is conducted in a manner consistent with the way of living of the rural woman. It may be necessary to first conduct research on the rural woman and decipher what the rural woman considers to be normal.

A number of studies could be conducted on civilian and military women with regards to postpartum depression. It is recommended that the sample for each group be taken from the same geographic area (latitude and longitude) and be surveyed throughout the same time period. It is also suggested that a larger sample size be gathered to allow for a more representative sample. The current sample size of 27 civilian women from
rural northwestern Montana cannot be generalized to all rural women. A larger sample size may eliminate many of the possible inconsistencies mentioned of the current study.

**Conclusions**

The purpose of this study was to determine if a higher prevalence of postpartum depression existed among women married to active duty military members compared with married civilian women in rural northwestern Montana. Contrary to expectations, the prevalence was higher in women from rural northwestern Montana. The prevalence rate was 62.96% for the civilian women indicating that 17 of the 27 women had positive scores on the Postpartum Depression Screening Scale (PDSS). However, the prevalence for both groups was far above what is considered typical. The group of military women had a prevalence rate of 50% indicating that 27 of the 54 women had positive scores on the PDSS. In essence, both groups are at high risk for postpartum depression.

Limitations to the current study did exist. The sample size was relatively small at 27 participants and 54 participants for the civilian and military populations respectively. This cannot be considered representative of the entire population. Data were collected over different time periods which could also alter the consistency of the results. The data were also collected at different geographic locations allowing for various outliers, such as the effect of high latitude, to exert an effect. The current economic climate may also have played a role as new mothers may have been exposed to new stressors.

The results have implications for current practice as the two specific groups of women studied both exhibited elevated prevalence of postpartum depression. Screening specific for postpartum depression needs to be conducted with both women associated
with the military and women in rural areas. Screening tools such as the PDSS may be used to specifically address areas associated with postpartum depression and open lines of communication. It has been suggested by past research that women should be screened more than once in the postpartum months but rather frequently throughout the 15 months following the birth of a baby.

Further research could be conducted on postpartum depression in the woman living in the rural area. The results of this research indicated that this population may exhibit internal and external stressors associated with postpartum depression. Future research could also be conducted with a larger sample of civilian women and those associated with the military located in the same geographic area and collected throughout the same time period.

Healthcare professionals are in position to identify and assist those women struggling to survive a period of intense lifestyle change. Optimal outcomes may be achieved by overcoming the pain and sadness associated with postpartum depression. The PDSS exists to assist the healthcare provider in identifying those in need of help. A multidisciplinary approach can then be taken to effectively treat those women suffering in silence.


APPENDICES
APPENDIX A

NATIONAL INSTITUTE OF HEALTH CERTIFICATE OF COMPLETION
Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Brittany Coburn successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 01/26/2009

Certification Number: 164705
APPENDIX B

LETTER OF PERMISSION FROM PROVIDERS
September 11, 2009

In regards to: A Comparative Study of Postpartum Depression in Wives of Active Duty Military Members with Wives of Members of the General Population

Dr. Kathy Nelson
210 Sunnyview Lane Suite 201
Kalispell, MT 59901

Dear Dr. Nelson,

Enclosed, please find information regarding my gradate research project entitled, “A Comparative Study of Postpartum Depression in Wives of Active Duty Military Members and Wives of Members of the General Population.” If you would approve, I would like to begin my data collection in October when I have received final approval from the Institutional Review Board and the Human Subjects Committee at Montana State University.

I will be developing an informed consent form to provide to each of the participants that also requires approval from the IRB at Montana State University. I am enclosing the research tool that will be used and the brochures that will be included in each packet for the participants. Information will be included for each of the participants to use if they feel that they are experiencing the symptoms of postpartum depression and they will be encouraged to speak openly with their provider.

If you have any additional questions or concerns, I would be more than happy to meet with you at any time.

Respectfully yours,

Brittany Coburn, BSN, RN
APPENDIX C

INFORMED CONSENT
To Whom It May Concern:

I am a Registered Nurse attending Montana State University. I am working on obtaining my Masters in Nursing degree with a major of Family Nurse Practitioner. I have been a Registered Nurse for five years and am interested in understanding unique health issues that are specific to new mothers.

You are being asked to participate in this research study because you recently gave birth to a baby and are married. Your part in this study requires only that you complete a seven question survey that should take less than five minutes. It is titled the Short Form of the Postpartum Depression Screening Survey.

Your help in this study is completely voluntary and greatly appreciated. The information that you provide while completing this survey will help us understand the health issues effecting new mothers. There are no known risks to completing this survey. Completing this survey may cause you to feel uncomfortable. If you experience any negative feelings, you are encouraged to speak to your health care professional at this appointment. The survey will be completely anonymous and no identifying information will be connected to your survey results. Your healthcare provider will not be receiving a copy of this survey.

If you have any questions regarding this study or survey, please contact Brittany Coburn BSN, RN at brittanycoburn@gmail.com or 406-314-0456. You may also contact my research supervisor, Dr. Kathleen Schachman at 406-994-2705. If you become upset while completing the survey, please discuss your feelings with your healthcare provider at this appointment.

By completing the first seven questions of this survey, you are giving your informed consent to participate in this survey. You may withdraw from this survey at any time by turning in a survey that has not been completed or handing back your blank survey to the receptionist. When you have completed your survey, please place it in the attached envelope and place the envelope in the locked box provided. A brochure has been provided for your information regarding postpartum depression. Deciding not to participate in this study will not affect the care of you or your baby at this clinic in any way. Thank you.

Sincerely,

Brittany Coburn
APPENDIX D

POSTPARTUM DEPRESSION BROCHURE
What is postpartum depression?

Postpartum depression – “PPD” for short –

8 new mothers within a year after they give birth. PPD is long-lasting sadness. If you are a woman with depression, you are not alone. Help is out there.

Here are some symptoms of PPD:

- Loss of interest or pleasure in life
- Loss of energy and motivation to do things
- Sleeping too much or too little
- Feeling like life isn’t worth living
- Irritability, anxiety, or restlessness
- Feeling worthless and guilty
- Withdrawal from friends and family
- Eating too much or too little
- Having trouble remembering, focusing, or making decisions
- Crying a lot
- Having thoughts of hurting yourself
- Thinking about hurting your baby

What PPD is NOT:

PPD is not something to be ashamed of. It is not your fault. It is not a sign of a weak personality.

PPD is an illness that requires medical care just like diabetes is an illness that requires care. You can take the steps to deal with PPD and its symptoms.
Checklist of Symptoms:
Use this list if you think you might have PPD. If you feel you have any of the symptoms below that have lasted for more than 2 weeks and are affecting your life, talk to your doctor, nurse, or midwife.

- Sad
- Guilty
- Hopeless
- Lonely
- Helpless
- Worthless
- Unable to make decisions
- Confused
- Extremely agitated
- Unable to laugh
- Thought of hurting yourself or your baby
- Strange visions
- Scary fantasies
- Loss of confidence
- Full of doubts
- Mood swings
- Appetite changes
- Overwhelmed
- Excessive crying
- Tired/exhausted
- Anxious
- Tense
- Isolated
- Poor self-care
- Low self-esteem

*Items in bold print require immediate attention. Please see your doctor.

Who can get PPD?
Any woman who has had a baby in the past year can get PPD. There is no warning for PPD.

It doesn't matter how old you are, what race you are, or how much money you have.

When can I get PPD?
PPD can happen any time in the first year after delivery. Symptoms last longer than 2 weeks and affect your ability to function as a mother.

Why would I get PPD?
After delivering a baby, mothers sometimes go through emotional changes because of a drop in chemicals in the body called hormones. These changes can include mood swings, sadness, crying spells, changes in appetite, sleeping problems, and feeling anxious, irritable, or lonely.

Remember, it is not because of something you did. Depression is caused by a chemical imbalance.
Other questions:
Who should I talk to?
Where can I get help?

nurse practitioner, or nurse midwife. He or she can help and may give you medications for depression, or suggest a counselor. You can also join groups with other mothers like you.

Can I keep this private?
Yes — your medical care is confidential. It is, however, a good idea to discuss your treatment with a spouse or close friend so that they can help you through this.

What about cost?
Treatment of PPD is like treatment of any other medical condition — care is covered by insurance or through federal or state insurance assistance.

How does PPD affect me and my baby?
When a mother has PPD, she may lack energy and not want to play with her baby. She may have trouble paying attention to things.

She may not be able to meet her baby’s needs for love. This may make her feel guilty and lose confidence in herself as a mother — which makes PPD even worse.

How can mothers with PPD get better?
Good news – treatment is available, and it works!

There are 2 main types of treatment for PPD: medications and therapy.

Can PPD come back once I feel better?
You might be at risk following the birth of future children. If you get help for your PPD and still don’t feel better, talk to your doctor, nurse practitioner, or nurse midwife.
Tips for Coping With PPD

- Find someone to talk to about your feelings.
- Talk with another mother about your feelings and problems. She may have “words of wisdom.”
- Ask your family for help with childcare, chores, and errands.
- Find time for yourself. Try exercising (walking), taking a bath, or something else you enjoy. Give yourself 15 minutes a day!
- Don’t worry about being perfect, and know that your feelings are normal.
- Avoid being alone.
- Eat a good, healthy diet. Eat small, frequent meals.
- Keep a diary. Write down your emotions. You will notice that what you write in your diary will change and show a better, healthier person as time goes on.
- Remember it is OK to feel overwhelmed. Parenting is hard!
- Talk to your doctor, nurse practitioner, or nurse midwife about how you feel.

Remember:

Don’t be afraid to ask for help! You and your baby deserve health and happiness!

You can learn more about PPD from the following places:

National Women’s Health Information Center
Phone (800) 994-9662
http://womenshealth.gov/fact/postpartum.htm

American Psychiatric Association
Phone (888) 35-PSYCH or (888) 357-7924
http://healthyminds.org/postpartumdepression.cfm

MedEdPPD
http://www.mededppd.org

Postpartum Support International
Phone (800) 944-4PPD or (800) 944-4773
http://www.postpartum.net

You can download a printable version from:

http://www.mededppd.org

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APPENDIX E

POSTPARTUM DEPRESSION SCREENING SCALE
Below is a list of statements describing how a mother may be feeling after the birth of her baby. Please indicate how much you agree or disagree with each statement. In completing the questionnaire, please circle the answer that best describes how you have felt over the past 2 weeks. Read each item carefully. Then circle the number that best fits your answer. Please give only one response for each statement, using the following scale:

1 Strongly Disagree 2 Disagree 3 Neither Agree nor Disagree 4 Agree 5 Strongly Agree

If you wish to change your response, completely mark through your first response with an "X." Then circle the response that best fits your new choice.

**During the past 2 weeks,**

1. I had trouble sleeping even when my baby was asleep.
2. I got anxious over even the littlest things that concerned my baby.
3. I felt like my emotions were on a rollercoaster.
4. I felt like I was losing my mind.
5. I was afraid that I would never be my normal self again.
6. I felt like I was not the mother I wanted to be.
7. I have thought that death seemed like the only way out of this living nightmare.
8. I lost my appetite.
9. I felt really overwhelmed.
10. I was scared that I would never be happy again.
11. I could not concentrate on anything.
12. I felt as though I had become a stranger to myself.
13. I felt like so many mothers were better than me.
14. I started thinking that I would be better off dead.
15. I woke up on my own in the middle of the night and had trouble getting back to sleep.
16. I felt like I was jumping out of my skin.
17. I cried a lot for no real reason.
18. I thought I was going crazy.
19. I did not know who I was anymore.
20. I felt guilty because I could not feel as much love for my baby as I should.
21. I wanted to hurt myself.
22. I tossed and turned for a long time at night trying to fall asleep.
23. I felt all alone.
24. I have been very irritable.
25. I had a difficult time making even a simple decision.
26. I felt like I was not normal.
27. I felt like I had to hide what I was thinking or feeling toward the baby.
28. I felt that my baby would be better off without me.
29. I knew I should eat but I could not.
30. I felt like I had to keep moving or pacing.
31. I felt full of anger ready to explode.
32. I had difficulty focusing on a task.
33. I did not feel real.
34. I felt like a failure as a mother.
35. I just wanted to leave this world.
APPENDIX F

DEMOGRAPHIC DATA
Please complete the following information:

Name (or ID number):

Age: _______ years

What is the highest education you have earned?

☐ Less than high school graduate
☐ High school graduate
☐ Some college
☐ Four-year college degree or more

What is your race/ethnic group?

☐ White
☐ Black or African American
☐ Hispanic or Latino
☐ Asian
☐ American Indian or Alaskan Native
☐ Native Hawaiian or other Pacific Islander
☐ Other (please specify) 

What is your marital status?

☐ Single
☐ Married
☐ Partnered
☐ Divorced
☐ Separated
☐ Widow

Other (please specify)

Do you have a previous history of depression? ☐ Yes ☐ No

Have you ever been treated for depression
(psychotherapy or medication)? ☐ Yes ☐ No

How many times have you been pregnant? ________

How many biological children do you have? ________

For your most recent birth:

What type of delivery did you have? ☐ Vaginal ☐ Cesarean

What was the date of your baby's birth? ________________

How are you feeding your baby?

☐ Bottle feeding ☐ Breast-feeding ☐ Combination