2010

Feasibility of Brief Hospital-Based Interventions for Postpartum Depression: Effects on Depressive Symptoms, Perceived Support, & Treatment Utilization

Sabra N. Abboud
Philadelphia College of Osteopathic Medicine, sabraabboud@yahoo.com

Follow this and additional works at: http://digitalcommons.pcom.edu/psychology_dissertations

Part of the Clinical Psychology Commons

Recommended Citation
Philadelphia College of Osteopathic Medicine
Department of Psychology

FEASIBILITY OF BRIEF HOSPITAL-BASED INTERVENTIONS FOR POSTPARTUM DEPRESSION: EFFECTS ON DEPRESSIVE SYMPTOMS, PERCEIVED SUPPORT, & TREATMENT UTILIZATION.

By
Sabra N. Abboud

Copyright 2009
All Rights Reserved

Submitted in Partial Fulfillment of the Requirements of the Degree of Doctor of Psychology

May 2010
PHILADELPHIA COLLEGE OF OSTEOPATHIC MEDICINE
DEPARTMENT OF PSYCHOLOGY

Dissertation Approval

This is to certify that the thesis presented to us by Sabra Abbond, on the 20th day of May, 2010, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

Committee Members' Signatures:

Elizabeth Gosch, Ph.D., Chairperson

Takako Suzuki, Ph.D.

Janine Castle, Ph.D.

Robert A. DiTomasso, Ph.D., ABPP, Chair, Department of Psychology
Acknowledgements

I wish to extend my thanks to the following individuals for their aid in the evolution of this document: Elizabeth Gosch, Ph.D., Takako Suzuki, Ph.D., Janine Castle, Ph.D., Tim Victor, Ph.D. and David Polk, Ph.D. Your dedication, support and patience are greatly appreciated.

I wish to offer a special thanks to the following people for the support that has greatly influenced my personal and professional development: Bette Goessling for instilling a sense of respect for education, April Allison for being there during difficult times, Cheryl Desmond, Ph.D., a wonderful role model, Lara & Jeff Davis for being living examples of grace and love, Tammy & Jim Pooler for your spiritual guidance, Stephanie Fry for your love of debate, and to my daughter Rayna, quite simply the light of my life.

This document is dedicated in loving memory to Robert & Harriet Goldstaff.
Abstract

It is estimated that 10-20% of childbearing women develop postpartum depression (PPD), affecting up to 400,000 women in the United States each year. As many as 82% of women diagnosed with PPD decline recommended treatment, primarily due to a lack of knowledge about PPD, to societal stigma and to practical barriers. The objective of this study is to evaluate the feasibility of conducting a large-scale study examining the impact of screening measures and a supportive approach immediately postpartum on utilization of recommended care, levels of depression and perceived social support. Women were randomly assigned (N=40) on a maternity unit to one of four conditions. 1) treatment as usual (control), 2) PPD screening, 3) problem-solving support, and 4) PPD screening and problem-solving support. The three experimental groups also received brief education regarding depression and treatment effectiveness. A post-test at eight weeks postpartum involved a PPD screen, social support questionnaire, life events questionnaire and brief interview to assess utilization of care. An ANCOVA was used to assess whether or not treatment had an effect on screening scores, perceived support and recent life events after controlling for income as a covariate. Results indicated no significant differences between treatment and screen scores, perceived support or recent life events. Positive associations between income and social support scores and negative associations between income and recent life events were observed, suggesting that women of lower socioeconomic status are more likely to experience negative life events and perceive their
support as being less adequate. Four women (10%) utilized treatment; of these four, two initiated antidepressants and had a history of treatment for depression. No significant differences were noted between the women who utilized treatment and the overall sample. Denial of treatment was related to fatigue, feeling overwhelmed and beliefs countering treatment. A model supporting the use of a standardized PPD brochure, routine screening immediately postpartum and at early pediatrician visits, prenatal education for both parents, home visits, and the use of a staff psychologist to treat postpartum women in a supportive environment through continuity of care is suggested. In addition, it is suggested that the results of this study be used to generate a second feasibility study utilizing the suggestions provided in this study. The results of a second feasibility study could be used to obtain funding for a large-scale study with adequate power, which could be used to support legislation to fund the proposed model.
Table of Contents

I. List of Illustrative Materials................................................................. ix

II. Introduction......................................................................................... 1
   a. Overview
   b. Aim of Study: Similar studies that indicate need for empirical support.
   c. Current prevention methods in Pennsylvania
   d. Recent legislature for PPD prevention
   e. Concerns about current approaches
   f. PPD Screening: Strengths and considerations for current use.
      i. Specificity
      ii. Administration
   g. Utilization Barriers
      i. Rates of non-compliance
      ii. Social barriers
         1. Supportive approach
      iii. Identification of PPD in medical community.
      iv. Practical barriers: Finances, childcare, insurance…
         v. Problem solving abilities as a barrier to utilization of services.
   h. Goals of study
   i. Summary of study design and approach.

II. Literature Review............................................................................... 10
   a. History
      i. Postpartum Depression
      ii. Social Support
      iii. Prevention Measures
      iv. Outcome Measures
   b. Postpartum Depression
      i. Classification approaches
      ii. DSM-IV-TR Diagnostic Criteria
      iii. Differential Diagnosis
      iv. Prevalence and Associated Features
      v. Risk Factors
      vi. Hormonal Influences
      vii. Treatment
1. Supportive Services:
   a. Visiting nurses
   b. Phone Contacts
   c. Normalizing and Validating
   d. Problem Solving
2. Psychotherapy
   a. Individual
   b. Group
3. Medications
4. Hormone replacement
c. Current Strategies in Prevention of PPD
d. Previous Attempts to Compare Prevention Models
   i. Strengths
   ii. Weaknesses: Areas for further research
e. Utilization of Treatment
   i. The Influence of Beliefs on Utilization
   ii. Past Studies
f. Hypotheses

III. Methods........................................................................................................ 45
a. Subjects
   i. Inclusion Criteria
   ii. Sample Size
   iii. Setting
   iv. Demographic and Cultural characteristics
b. Design
   a. Experimental Condition
   b. Posttest Condition
   c. Variables
c. Measures
   a. Edinburgh Postnatal Depression Scale (EPDS)
   b. Postpartum Depression Screening Scale (PDSS)
   c. Rationale for selected measures
d. Recent Life Events Questionnaire (RLEQ)
e. Brief Measure of Social Support (BMSS)
d. Procedures
   a. General
   b. Coding, Record Keeping and Confidentiality
List of Illustrative Materials

Table 1: Frequency and Percentiles of Responses to EPDS Items ...............125

Table 2: Frequency and Percentiles of Scores on EPDS .....................126

Table 3: Frequencies and Percentiles of Barriers to Recommended
  Treatment on the Problem-Solving Worksheet ..........................127
Table 4: Mean numbers of EPDS scores between groups .....................128
Table 5: Mean numbers of responses between groups for problem-
  Solving worksheet & responses to “helpful” item ......................129
Table 6: Means of demographic variables of subjects among conditions ...130
Table 7: Means of PPDS results among conditions ..........................131
Table 8: Frequencies and percentiles of significant PPDS results .........132
Table 9: Means, frequencies & percentiles of PPDS results ...............133
Table 10: ANCOVA for PPDS .................................................134
Figure 1: Comparison of group means for PPDS ...........................135
Figure 2: Scatterplot of income and groups PPDS results .................136
Table 11: ANCOVA for BMSS .................................................137
Figure 3: Comparison of group means for BMSS ........................138
Figure 4: Scatterplot of income and groups BMSS results .............139
Table 12: ANCOVA for RLEQ ...............................................140
Figure 5: Comparison of group means for RLEQ ..........................141
Figure 6: Scatterplot of income and group RLEQ results .............142
Table 13: Partial Effect Sizes ..............................................143
Table 14: Means, frequencies & percentiles of treatment utilization ....144
Table 15: Frequencies and percentiles of RLEQ scores and PPDS scores .145
Figure 7: Scatterplot of RLEQ & PPDS correlation ......................146
Introduction

Depression during the postpartum period is a serious mental health concern for women, and its consequences have potentially devastating implications for the welfare of the family, mother, and infant development (Lynne, 1996; Cox, 2003). Children of depressed mothers are more likely to have delayed psychological, cognitive, neurological, and motor development, and are at higher risk for insecure attachment (Edhborg, 2001; Field, 1995; Abrams, 1995). It is estimated that 10-20% of childbearing women develop postpartum depression (PPD), affecting up to 400,000 women in the United States each year (Kleiman & Raskin, 1994; O’Hara, 1996). Given the impact and prevalence of PPD, the importance of preventative measures has recently gained attention within the public and professional community. In addition, recent media coverage depicting cases of infanticide have raised public awareness about the potentially devastating effects of PPD if left untreated. Such examples have fueled a need for psychological interventions to avoid such tragedy in the future (Spinelli, 2004).

This study aims to evaluate the impact of postpartum interventions on utilization of mental health treatment, severity of postpartum depression, and perceived social support. Interventions include screening, supportive listening, and problem solving around potential barriers to care. Past studies of PPD conducted in Europe emphasize the importance of stringent screening, aggressive referrals, and a network of supportive staff to attend to woman’s needs (Cox, 1996; Holden, 1996; Elliott, 2001). Holden suggests the use of routine screening such as the Edinburgh Postnatal Screening Scale (EPDS) and has published both texts and articles that describe the use of routine screening in conjunction with an expansive support network, which is easily accessible in Britain (Holden, 1996). While Britain in particular takes a proactive
approach that appears to be effective from a “real world” perspective, there is no evidence to
date supporting the carryover of screening and support on utilization of care in the United States,
where such services and awareness are limited. Therefore, one purpose of this study is to provide
a scientific understanding of the interaction between efforts to identify PPD and its ultimate
influence on utilization of treatment in the United States.

Current prevention methods utilized in Pennsylvania maternity units are provided on a
routine basis and comply with House Bill No. 1488, which was implemented in 2005. This bill
mandates intervention consisting of education regarding PPD symptoms and referrals to mental
health providers, although no formal screening is implemented. Education is provided in the
form of handouts given in the maternity unit just after labor and delivery, with no professional
assessment or intervention. It is clearly stated in the counseling act that there is a presumption of
compliance with no follow-up required. In addition, the new mother signs a contract legally
stating that she has been educated and is responsible for her own treatment (House Bill No. 1488,
2005).

Although other states such as Texas, Washington, Minnesota and California have passed
laws similar to Pennsylvania’s program, New Jersey stands alone as the only state requiring
routine PPD screening before discharge from the maternity unit and during postnatal check-up
visits. New Jersey passed the Postpartum Depression Screening and Education law, which
became effective in October of 2006 and proposes these same measures (S. 213, 2006). Senator
Richard Codey and the New Jersey Department of Health responded to an email inquiry
regarding the specifics of this act in August of 2006, stating that supporting empirical documents
were available, although it was made public that the senator’s interest in PPD was initiated by
the fact that his wife suffered with postpartum depression in the past. Senator Robert Menendez (NJ) introduced the Mom’s Opportunity to Access Health, Education, Research and Support for Postpartum Depression Act, or the MOTHERS Act in 2007, which is modeled after the 2006 law described previously (S. 1375, 2007).

There are a number of potential concerns regarding the current approach to PPD prevention. First, it is questionable whether or not new mothers recovering physically and emotionally from childbirth are able to distinguish, objectively, their own symptoms from a list of PPD symptoms distributed to them. Second, the current practice of distributing forms does not consistently provide the opportunity for mothers to discuss symptoms and concerns openly with a knowledgeable professional. Third, educational handouts introduce the topic of PPD, but do little to normalize feelings and thoughts resulting from the stigma of a label, such as “going insane” or of being “a bad mother”. According to Sandra A. Elliot, author of *The Uses and Misuses of the Edinburgh Postnatal Depression Scale in Primary Care*, “What is required to halt the down-spiraling of PPD is validation of emotions, some normalization of their experience of parenting and not pathologizing via labeling” (Elliott, 1996). And fourth, the current method of providing a list of resources does not address practical barriers to treatment such as fear of having a child taken away, transportation, finances, childcare and a multitude of other factors.

Self-report screens could be used to counter these issues in conjunction with a clinical intervention. These are quickly administered, easy to complete and have the potential to provide a significant amount of clinical information in a short period of time. In a hospital setting, self-report screens provide empirical data to support a diagnosis, rather than relying on perceptions that are often subjective and contaminated with extraneous information. There is a general
agreement throughout PPD literature regarding the usefulness of screening as a means of preventing exacerbation of symptoms by identifying new mothers for intervention, and thereby increasing rates of treatment utilization (Cox, 1994; Georgiopoulos, 2001). Routine screening could serve as a buffer, to compensate for the gap in clinical assessment currently implemented by medical professionals. In addition, screening provides a standardized method of assessment, which could be re-evaluated in subsequent health visits to monitor symptom progression.

Theory is supported by empirical data in numerous studies examining the impact of screening on diagnosis. A residency program comparing routine clinical evaluation verses use of the Edinburgh Postnatal Depression Scale (EPDS) found an impressive increase in postpartum depression identification, from 6.3% to 35.4 (Evins, 2000). Other studies show an increase of PPD diagnosis from 3.7% to 7% when the EPDS was routinely utilized (Georgiopoulos, 2001). Maternal mood at one week postpartum is the largest predictor of depressive symptomatology at eight weeks, which explains the reason why many authors encourage standardized screening within the first week of delivery (Dennis, 2007).

One concern regarding self-report screens is that many scales for depression are effective in identifying depression, but lack specificity required to detect PPD (Cox, 2003). For instance, new mothers commonly endorse somatic, sleep and weight items that are normal physiological changes of childbearing, thereby resulting in a false presentation of depression. Since the mid 1980’s, it has been accepted that specifically validated depression scales were needed for postpartum women (Beck, 2002). Therefore if screens are used, it is beneficial to use a measure specifically designed for PPD detection such as the Edinburgh Postnatal Depression Scale (EPDS) or the Postnatal Depression Screening Scale (PDSS).
Another concern regarding the routine use of screens is regulation of specific administration guidelines. Screening measures are by definition, a tool in the development of clinical conceptualization and should be interpreted by professionals trained in psychology and test administration. According to the manual for both the EPDS and the PDSS, screening should never be used as the sole basis for making diagnostic and treatment decisions regarding PPD, and such decisions require consideration of data from multiple sources including a structured clinical interview (Beck, 2002; Cox, 2003). Although New Jersey has taken steps to require screening, these ethical and clinical concerns remain.

From a clinical and legislative perspective, identification of women in need of treatment for postpartum depression and the increasing rates of treatment utilization are primary healthcare initiatives. The data suggest a striking lack of utilization of services. Rates of non-compliance typically range from 50-53%, although rates as high as 90% have been reported (McIntosh, 1993; Robinson, 1982; Ramsay, 1993 & Whitton, 1996). In a study of 772 mothers diagnosed with PPD in Germany, only 18% (N=5) accepted the recommended treatment (Ballestrem, 2005). The remaining 82% declined services because of attitudinal reasons such as “I don’t think treatment will help me” or practical reasons such as “I don’t have time”.

Social barriers have been identified as major contributing factors in the compliance rates of women referred to psychological treatment for PPD. Women face significant social barriers to utilization of care; these include attributing depression to external and social pressures rather than being seen as a medical illness, the belief that feeling depressed after childbirth is an expected experience and therefore minimized, and a fear of the consequences of talking about
their emotional states to health professionals (Whitton, 1996). To counter these social barriers, researchers have turned to a supportive approach and to education in the treatment of PPD.

The general theme of a supportive approach is creating a feeling of not being alone in an environment that is accepting, non-judgmental and able to convey genuine concern for the welfare of the new mother and her child. Therefore, a supportive approach aims to decrease feelings of social isolation and increase feelings of social connectedness (Hawthorne, 2006). In such a setting, barriers such as misconceptions and fears can be addressed in a manner that optimizes the mother’s chance of receiving care. Support can be provided by staff members in a hospital setting, by psychologists, or non-directive counseling by health visitors trained in supporting new mothers. It can be integrated into a clinical interview, support groups, telephone intervention or home visitors (Cox, 1994).

A lack of social support has consistently been demonstrated as an important risk factor for postpartum depression (O’Hara, 1996; Dennis, 2004 & 2007). Women with perceived inadequate relational support are more likely to develop depressive symptoms than are new mothers with a solid support system (Dennis, 2004 & 2007). Support can be offered through family, counseling, “health visitors”, support groups or telephone contacts. Telephone support is correlated with reduced levels of fatigue in postpartum women; this is significant, given that fatigue during the first six weeks postpartum is correlated with development of depression (Thome, 1999). Support is believed to be so important in Britain that legislature mandates and financially provides daily home visits from a midwife for the first 12 days, weekly home visits from a “health visitor” for the next six weeks, followed by encouragement to attend weekly group “well-baby meetings” (Bradley, 2003).
Utilization of treatment by women suffering with PPD is further hindered by the incidence of clinicians simply not identifying PPD when it presents in a clinical setting. One study evaluating the need for screening as a preventative measure for PPD found that medical providers do not assess risk factors for PPD on a consistent basis, or in a standardized manner (Hoefliger, 2003). Another found that clinicians failed to identify nearly half of depressed mothers in a sample of 176 mothers who had been seen for an average of 14 health visits each (Hern, 1998). Holden and colleagues found that health visitors identified only 40% of women who scored above cut-off on the Edinburgh Postnatal Depression Scale (EPDS) (Holden, 1996). A survey of 362 physicians (298 of whom were treating postpartum women) found that only 18% used a tool specifically designed to screen for PPD despite a reported belief that PPD is a serious, identifiable, and treatable disease (Seehusen, 2005). From the patient’s perspective, women at four weeks postpartum indicated the care they received from their family physicians in the first month postpartum was less helpful in addressing their health issues than in those issues with non-depressive symptoms (Dennis, 2004).

Women with few financial resources, poor childcare options, and poor social support are at particular risk for developing postpartum depression (O’Hara, 1996). Therefore, an evaluation of women at risk for PPD will likely reveal these issues which are not only risk factors for PPD, but are environmental barriers to utilization of mental health services. In theory, women with few financial resources are more likely to face difficulties such as transportation, childcare and lack of finances and/or insurance coverage to pay for mental health care. In rural areas with no public transportation, inability to access treatment may be a major barrier in itself. Early
postpartum, before potential PPD symptoms progress, is an ideal time to address these obstacles in a supportive environment in which objective, structured problem solving can be accomplished.

Factors impacting problem solving in new mothers include high levels of depression, fatigue, stress (Benoit, 1989) and poor quality of support (Bithoney, 1987). Many new mothers demonstrate impaired memory and impaired processing speed abilities, which could affect problem-solving skills even in the absence of postpartum depression symptoms (Groot, 2006). Negative affect has been shown to disrupt parental problem solving and the ability to reason clearly about childbearing conflicts (Emmerich, 1969). Limited maternal problem solving abilities are also correlated with inadequate nurturing skills, leading to a failure to thrive in infants (Robinson, 2001).

Given that numerous postpartum women face numerous risk factors that may hinder problem-solving skills, women experiencing early PPD symptoms are theoretically even more vulnerable to these factors at a time when they are faced with potentially overwhelming responsibility. Some new mothers, especially at-risk women lacking in financial stability and social support may find themselves submerged in practical, real-life problems after they return home, are left to face them alone and are ill-prepared. In this situation, women lacking problem-solving abilities are left to make care-giving decisions independently.

In summary, utilization of care is hindered by perceptions of women regarding PPD, by social factors, by a lack of standardized screening to identify PPD symptoms in a medical setting, by practical barriers such as transportation and childcare and the problem solving abilities of a new mother overwhelmed with her new role and responsibilities in the light of hormonal changes and sleep deprivation. This study aims to address each of these barriers in an
attempt to better understand factors that may increase utilization of care for women in need of services.

The first goal of this study is to explore the relationship between interventions used in a maternity unit setting and utilization of care at six and twelve weeks, post-partum. The second goal is to examine the severity of postpartum depression symptoms in relation to different interventions. The third goal is to evaluate the patient’s subjective experience of feeling supported across intervention conditions. The data collected from this study will help us better understand the most clinically valid method of screening women for PPD, taking us one step closer towards identifying factors to increase utilization of care.

To achieve the above objectives, the proposed study used a four factor design, combining four different experimental conditions to evaluate the effectiveness of each condition on utilization of treatment, subjective feelings of being supported and less alone, and levels of PPD at six and twelve weeks, postpartum. The four conditions are as follows: (1) standard care, EPDS, and supportive problem solving (2) standard care & EPDS, (3) standard care, and supportive problem solving, and (4) standard care. All four groups receive a posttest, which includes a follow-up phone call to assess the identified dependent variables at six and twelve weeks, postpartum.
History

The history of postpartum depression is complex, considering varied cultural practices combined with changing roles of women during the past century. The following section examines the history of PPD from a diagnostic perspective, and includes historical approaches of supporting women during the postpartum period. The evolution of postnatal treatment is intertwined with issues related to the women’s movement and variations in treatment between Europe and United States of America.

History of PPD

It is interesting to note a paucity of literature regarding the history of postpartum depression from a diagnostic perspective. A review of four classic texts on the history of childbirth in America, the Yucatan, Holland and Sweden between the years of 1750 to 1950 fails to mention postpartum depression or any mental health aspect of childbirth on even one occasion (Wertz, 1989; Leavitt, 1986; Jordan, 1993 & Banks, 1999). Arlene Huysman, author of The Postpartum Effect, devoted an entire chapter of her book to the medical disregard of PPD, stating that until 1952, there was no effort even to find proper nomenclature of the disorder (Huysman, 2003).

After an exhaustive search, the origins of PPD, its early treatments or the person who is credited with its “discovery” remain a mystery. The only clues to such inquiries lie in published research and in the development of screening measures. The earliest quote regarding PPD in published literature originated from E. Esquirol in a journal article titled Mental Maladies: a Treatise on Insanity in 1839. In this article, Esquirol stated, “The incidence of psychiatric illness
following childbirth was much greater than the statistics from psychiatric hospitals would indicate, and large numbers of cases were cared for at home and never recorded” (Esquirel, 1839). The first recorded study of postpartum depression that included a comparison group was conducted in Oxford, England in 1988, which concluded that the prevalence rate of depression at 3 months postpartum was 8.7% (Cooper, 1988). The first screening measures were developed in the late 1980’s and the *Diagnostic and Statistical Manual of Mental Disorders* introduced postpartum depression into its nomenclature in the 1994 edition.

In 1985, medical journalist and author Carol Dix wrote a book titled, *The New Mother Syndrome*. It was the first clinical book devoted to the topic of PPD. Carol Dix placed an enormous amount of energy in educating the public through the media about the seriousness of the disorder. She conceptualized the historical position of today’s clinicians when she stated, “In trying to understand the complex picture of PPD, we have first to overcome years, if not centuries of misinformation, negligence, and psychological dumping on women of what is now obviously a biochemically induced syndrome. But you will find doctors, psychiatrists, and scientists arguing over the relative importance of the biochemical or psychogenic makeup of the emotional condition the new mother finds herself in” (Dix, 1985). There are many factors contributing to this apparent lack of historical documentation including cultural, educational and generational beliefs that such matters are private and best kept within the privacy of the home.

Another factor to consider is the communication gap between professionals. Even today, there is some question about whether or not PPD falls to the responsibility of psychiatrists, obstetricians, family physicians, pediatricians or gynecologists. Question regarding the acceptance of PPD as a serious disorder may further influence the confusion. When approached
about the topic of PPD, one gynecologist was quoted as saying “Not much of that going around these days. Most women usually resolve their ‘psychological’ issues during prenatal care” (Huysman, 2003). Part of the solution may lie in educating professionals (and the public), thereby debunking bias-based myths that minimize the significance of PPD as a valid medical disorder.

**History of Supportive Approaches**

Examination of multiple cultural approaches to the postpartum period reveals a common emphasis on family support for the first six to eight weeks. In Latin cultures this period is termed “La Quarentina”, meaning the woman is literally quarantined to her home with her newborn while family members care for her, her home and other children. The new mother is treated like a queen and is highly respected for her ability to reproduce. In Southeast Asia, this time is termed “mother roasting”, which reflects their belief in keeping the mother and child warm during the first six weeks (Placksin, 2000).

The tradition of intense postnatal support within the community not only provides emotional and physical support, but also the comfort of a knowledgeable person available to listen and share wisdom about childrearing practices. From an evolutionary perspective, support ensures that new mothers will learn to breastfeed, that they will be protected, and that the new baby and mother will remain healthy to ensure survival. For centuries, humans inherently understood not only the need for intensive support, but also the need for the communication of passed down knowledge to ensure the survival of offspring.

The Western term for this time of support is “Lying In”, and was common practice until the late 1700’s (Wertz, 1989). Up until this time, the standard practice was for a mother, mother-
in-law or other female family members to live with the new mother to assist her physical and emotional recovery. It was common for neighbors and other community members also to participate in supporting the new mother by preparing meals and tending her needs. The development of cities and loss of close knit family communities contributed to a gradual decline of “lying in” in the traditional sense. There are documented accounts of women hiring professional nannies as early as 1770 in Boston; this was previously an unheard of practice (Wertz, 1989).

By the 1920’s, women began to accept the idea of giving birth in a hospital setting where anesthesia provided an “unconscious delivery” and morphine was prescribed for postpartum recovery from childbirth. In addition, women were encouraged to stay for two weeks in a special hospital room designed to create an upscale hotel feel. This option was costly, but was available and widely used. At the time, this was the view of “women’s equality” and many did become addicted to morphine in the nineteenth century (Leavitt, 1986).

The 1950’s was marked by the movement for natural childbirth and the participation of men during labor and delivery. In the 1960’s, women in the U.S. tried to gain control over the place where and the time when they had children, although the weeks postpartum were neglected. This era marked a major shift in women’s roles, which were focused on independence, education, employment and economic responsibility. As women’s demands increased, it seemed that communities became less reliable in the support of new mothers, and society encouraged women to rely less on the support that did exist (Leavitt, 1986).

In a way, the women’s movement may have played a role in giving away a valuable, much needed tradition of women nurturing women when it said “I don’t need help; I can do it
myself”. In an effort to prove worth and competence, some believe that respect and societal value was taken from the new mother and her child. This shift was possibly an unfortunate outcome of well-intentioned women fighting for their rights that continues to affect women today, struggling to care for everything on their own (Leavitt, 1986).

The National Health Service (NHS) was developed in Europe in 1948 during the post World-War II era. Interestingly, the women’s movement was beginning to take form in the United States at approximately the same period of time. Britain was recovering from the ravages of war and needed a strong centralized, government-run health care system. This system provides free prenatal care, hospitalization and well-child services including extensive community based postnatal care. In addition, all European countries have paid allowances to help pay the cost of raising children, paid maternity/paternity leave, and childcare assistance (Bradley, 2003). This period was a critical period in the development of postnatal care, separating Britain’s community-based care from the U.S.’s individualist-based care.

An optimistic view of the U.S. healthcare system may suggest that recent media depiction of postpartum psychosis has raised some awareness into the seriousness of the disorder. As discussed in the introduction, recent legislation is making strides in increasing patient education, community awareness and in some cases, routine screening with treatment referrals. There are also some negative outcomes of the NHS such as concerns regarding the overall quality of healthcare, availability of specialized intensive beds and subsequent delays in treatment (Bradley, 2003). Although neither system is faultless, it does seem clear that improvement in clinical outcomes requires enhanced care that ensures adequate treatment follow-up, which is lacking in the current U.S. medical system (Gjerdingen, 2007).
Postpartum Depression

Although the DSM-IV-TR approaches the classification of PPD in an all-or-none manner, some literature calls for a continuum approach in which a range between maternal blues, PPD and Postpartum Psychosis is considered (Huysman, 2003). Because PPD is not classified as a distinctive disorder in any medically accepted nomenclature, the actual definition of PPD is often presented in terms of clinical descriptions and vignettes. The presentation of PPD was usefully summarized by Brice Pitt (1968) in his pioneer study of London women. Pitt described PPD as follows:

“The women experience tearfulness, despondency, feelings of inadequacy and inability to cope, particularly with the baby. Guilt was mainly confined to self-reproach over not loving or caring enough for the baby. Many felt quite changed from their usual selves, and most had never been depressed like this before. Depression was almost invariably accompanied, and sometimes overshadowed by anxiety over the baby, which was not justified by the baby’s health. Unusual irritability was common and many patients complained of impaired concentration and memory. Undue fatigue and exhaustion were frequent and anorexia was present with remarkable consistence. Sleep disturbance, over and above the inevitable with a new baby, was reported by a third of the patients…” (Pitt, 1968).

Later clinical descriptions were based upon empirically supported research of correlated risk-factors. These definitions are provided in the form of lists of factors associated with PPD, such as Cox and Holden’s (2003) identifying factors:
• Depressed mood for at least 4 weeks postpartum
• Excessive anxiety: fearful, worried.
• Lack of interest or pleasure in doing things.
• Early morning wakening or initial insomnia when the mother is kept awake by worrying.
• Ideas of not coping, self-blame and guilt.

**DSM-IV-TR Diagnostic Criteria**

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), postpartum depression is classified as a specifier for a more general mental disorder, and can be applied to Major Depressive Disorder, Bipolar I, Bipolar II or Brief Psychotic Disorder. In addition, it can be assigned to a mood or psychotic episode if the full criteria for a disorder are not present and is technically termed “With Postpartum Onset”. As a result, there are many coding possibilities, depending on the Axis I disorder or episode identified (APA, 2000). Recently, literature has presented an argument to support the inclusion of anxiety disorders such as Obsessive Compulsive Disorder, Panic Disorder and Phobias into disorders with a postpartum specifier; however, it has not been included in the DSM-IV-TR classification (Clay, 2004).

Regardless of the mental disorder specified, onset of symptoms specific to PPD must occur within four weeks postpartum to meet PPD criteria. Mood episodes may present with or without psychotic features, with .2% of childbearing women developing psychosis. Psychotic symptoms typically present as manic in nature, and in most cases may be considered a manifestation of bipolar disorder (Clay, 2004). The risk of a postpartum episode is increased by
a history of postpartum depression with previous deliveries, and also by a history of Bipolar I Disorder (APA, 2000).

**Differential Diagnosis**

The DSM-IV-TR does make reference to the importance of differentiating postpartum depression from “the baby blues”, which affect up to 70% of women during the first 10 days postpartum. Unlike postpartum depression, baby blues is associated with transient symptoms that do not impair functioning or result in severe distress (APA, 2000). The “blues” usually peak on postpartum days 4 and 5, and typically resolve by postnatal day 10. Symptoms include weepiness, irritability, insomnia, anxiety and depression, and it is so common that many regard it as a normal reaction, resulting from the hormonal changes immediately following childbirth (Boath, 2001). If the described symptoms of baby blues persist beyond ten days and begin before four weeks, a professional who has conducted a clinical interview may make a diagnosis of postpartum depression (APA, 2000).

PPD must also be differentiated from Postpartum Psychosis, which typically has an early onset (within the first 4 weeks), and initially presents with symptoms including insomnia, agitation, mania, irritability, and infant avoidance. As the depression progresses, delusions and hallucinations, usually involving the infant, become apparent. Up to 4% of women afflicted with postpartum psychosis go on to commit infanticide (Clay, 2004). Distinguishing between postpartum psychosis, PPD and the baby blues is important because of treatment differences that depend upon clinical characteristics. Treatment options include pharmacological, psychological interventions, social support, relaxation therapy and hormonal approaches (Boath, 2001).
pharmacological approach is widely accepted in the treatment of postpartum psychosis, but pharmacological and psychological approaches are equally effective for depression, although not in conjunction (Appleby, 1997). Psychological approaches are seen as a preferable treatment method by many new mothers because of potential side effects of antidepressants and their possible interactions with breastfeeding (Boath, 2001). The lack of data relating to the treatment of baby blues could reflect a belief that treatment is not necessary for the baby blues because of its relatively short course.

One study went as far as to suggest a completely separate diagnosis for two “types” of postpartum women, those whose depression appeared associated only with the demands of childbirth and parenting, and those in which birth is either unrelated to the depression or is a non-specific stressor. The study examined differing course and recurrence of postnatal depression to support their hypothesis, stating that women who had suffered a course of depression in the past were more vulnerable to later postpartum episodes. Results supported the hypothesis, finding that the rate of PPD was much higher and the course of illness much longer for the group that experienced a recurrence of depression than it was for the group whose occurrence of depression was first onset (Murray, 1989). The underlying assumption of this study is that there is a stronger biological basis to depression that is recurrent and triggered by childbirth than depression that is considered situationally bound.

Prevalence and Associated Features

PPD is considered a specifier of major depressive disorder, which has a prevalence rate of 10-25% for women and 5-12% for men (APA, 2000). Although the prevalence rate of PPD ranges from 10-20%, a meta-analysis of rates of non-psychotic PPD demonstrated a rate of 13%.
This rate was increased by the use of screening measures and by longer periods of evaluation (O’Hara, 1996). It is estimated that 1 in 500 to 1 in 1000 women experience PPD with psychosis, which is most often associated with cases of infanticide. Many of these women suffer with auditory hallucinations with reference to kill the infant and/or delusions that the infant is possessed (APA, 2000).

There has been some controversy regarding the course of PPD. For many years, it was thought that PPD symptoms persisted for only the first three months postpartum, the time after hormonal levels return to baseline values. Contrary to this belief, research dating from the 1980’s suggests that between 25% and 50% of mothers with PPD have episodes lasting six months or longer (O’Hara, 1987). The most significant factor associated with the duration of depression has been found to be the length of delay to adequate treatment (England, 1994). Over half of the women who develop PPD continue to suffer symptoms a year later (Clay, 2004). A longitudinal study of 62 women with elevated depression scores at 2 to 4 weeks postpartum found that 30.6% of these women scored in the depressed range on the Beck Depression Inventory-II and Parenting Stress Index at 2 years postpartum (Horowitz, 2004). Clearly, PPD is more clearly a chronic condition for many mothers than was previously believed.

In many cultures, postpartum is rarely reported and therefore believed to be uncommon and the result of extended social support (Huysman, 2003). Contrary to this belief, prevalence studies do seem to indicate that PPD is a nearly universal condition. A study conducted in Sweden surveyed 2430 postpartum women using the EPDS at two months and one year found a prevalence rate of 3% (79 women) (Rubertsson, 2005). The belief in universal prevalence rates was further supported by a meta-analysis study of 59 prevalence studies conducted in numerous
countries, which failed to indicate any difference in prevalence regardless of the nation in which the investigation was conducted (O’Hara, 1996). Although prevalence studies may lead one to conclude that support is not a significant factor in the development of PPD, it is noteworthy that these studies, previously described, found that a lack of social support was consistently cited as a risk factor for the women who did develop PPD (O’Hara, 1996: Rubertsson, 2005).

**Risk Factors**

A meta-analysis of risk factors associated with PPD indicates numerous risk factors including: prior history of psychopathology (including during pregnancy), poor social support, and stressful life events (O’Hara, 1996). In particular, women who have suffered a Bipolar I episode are especially vulnerable to the development of PPD with psychosis (APA, 2000). Biological factors such as significant hormonal changes during and after pregnancy play a role in the development of PPD, and severe premenstrual syndrome (PMS) has also been cited as a risk-factor for the development of postpartum depression (AAFM, 1999).

Maternal mood at one-week postpartum was the largest predictor of depressive symptoms at eight-weeks postpartum in a longitudinal study of 594 mothers completing the EPDS (Dennis, 2007). A comparison of screening models called the “Edinburgh Project” found that the administration of the Edinburgh Postnatal Depression Scale (EPDS) is a predictive tool in identifying women at risk in the early postpartum period. In many cases, a high score at six-weeks could indicate symptoms of depression that simply require “listening visits” to prevent a spiral into diagnosable depression (Cox, 1994).

Many cases of depression occurring in the postpartum begin before delivery, during the antenatal period (Thoppil, 2005). Thoppil and colleagues screened 82 women at the 32-week
antenatal visit, using the Edinburgh Postnatal Depression Scale. They found that roughly 10% of the women screened during pregnancy had a positive screen for depression. Numerous studies have demonstrated the connection between antenatal and postnatal depression. A study of 154 women completing antenatal and postpartum screens (EPDS cutoff score of 10) found that women who had antenatal depression were significantly more likely to be depressed postnatally and that 14.4% of the women were depressed both antenatally and postnatally (Edwards, 2008).

A large scale study of 40,333 women examined antenatal risk factors for PPD, finding antenatal depression together with a prior history of depression and low level of partner support were the strongest independent antenatal predictors of a postnatal EPDS score of twelve or more (Milgrom, 2008).

With regard to support as a risk factor, there is an abundance of literature validating a strong correlation between poor social support and development of PPD. One such study of 594 postpartum women in British Columbia found that at one week postpartum, women who indicated having no one to talk to were significantly more likely to exhibit depressive symptoms than those having someone with whom to discuss their concerns (Dennis, 2004). Women in the same study who wanted to know more people to ask for help were significantly associated with depressive symptoms and were more likely to be high utilizers of family physician services.

Support in the form of non-directive counseling can serve as a buffer for women with a poor social support system. A controlled, four group intervention of 87 postpartum women found that non-directive counseling by health visitors were as effective in reducing symptoms of PPD as was cognitive behavioral therapy or antidepressants (Appleby, 1997). Telephone interventions using health visitors in rural areas where face-to-face sessions are implausible,
demonstrate effectiveness in reducing fatigue in new mothers during the first six weeks, when mothers are vulnerable to exhaustion and the development of PPD (Thome, 1999).

There is compelling evidence that adverse life events and certain stressors specific to motherhood increase the risk of PPD (Swendsen, 2000). Of 12 studies reviewed by Swendsen and colleagues, 9 demonstrated a significant association between stressful life events and postpartum depression and depressive symptoms within three months postpartum. O’Hara and colleagues have consistently reported that stressful events during pregnancy and the early postpartum period were significant predictors of PPD, and that this relationship was especially strong for child care related stressors (O’Hara, 1991). Variations in depression vulnerability and stress reactivity have been correlated with a history of depression, poor social support, and individual coping styles (Swendsen, 2000), all of which are coincidentally correlated with the development of PPD.

A life event is defined as “a significant occurrence of relatively abrupt change that may produce serious and long lasting effects” (Settersten, 1997). Life events can occur in a variety of domains, including family, health, career, environmental, political, financial and so forth. Three types of life events can serve as turning points: events that close or open opportunities, events that make a lasting change in a person’s environment, and events that change a person’s self concept, beliefs and expectations (Chatterjee, 2004). Childbirth and becoming a new mother could easily be seen as events that are characterized by all three turning points.

It is proposed that some women may possess a genetic susceptibility to mood changes, secondary to hormonal changes that occur postpartum (Cox, 1994). An important breakthrough in the identification of susceptibility to affective psychosis has been the discovery that 8 of 15
women with a history of bipolar or schizoaffective psychosis who relapsed postpartum had increased sensitivity of dopamine receptors in the hypothalamus (Wieck, 1991). These changes were thought to be triggered by the sharp fall in estrogen, post-delivery. The fact that postpartum psychosis, which begins between the third and fourteenth day postpartum, is closely correlated with abrupt changes in hormone levels, and a history of family and personal psychiatric illness also support the notion of a trait susceptibility to any hormonal change (Cox, 1994).

Biological factors such as hormone changes are also believed to play a significant role in mood changes postpartum (Cox, 1994). From the sixth week of pregnancy through to the end of pregnancy, estrogen levels are three times higher than the highest point in the menstrual cycle (Sichel, 1999). Estrogen maintains the orderly firing rates of serotonin, dopamine, acetylcholine, and norepinephrine nerve cells. It also strongly enhances glutamate activity, which accelerates nerve communication in the brain and encourages mood stability. When estrogen levels rise, the overall effect is to increase the amount of serotonin available in the spaces between the nerve cells, thereby contributing to mood stability. The first three days postpartum are marked by a dramatic decrease of estrogen levels, which in effect, may reverse this antidepressant effect (Sichel, 1999).

During pregnancy, progesterone also increases and is responsible for keeping the pregnancy viable until the placenta takes over. Progesterone decreases the number of estrogen receptors, which in theory could affect levels of depression. Supporting this theory is the susceptibility of some women using progesterone-based birth control to increased levels of depression and distress (Sichel, 1999). Gelder (1978) acknowledged that the fall in circulating estrogen and progesterone over the first few days postpartum suggest that the “postpartum
blues”, which regularly occur during days three to five, may result from the failure to adjust to these hormonal changes (Sichel, 1999).

Problem Solving

Problem solving abilities are identified in the introduction of this paper as potential barriers to utilization of treatment. In theory, women who lack problem-solving abilities are also more vulnerable to developing PPD because they lack the skills necessary to navigate early motherhood effectively, which may result in life stress and depression. A large number of studies using the Social Problem-Solving Inventory-Revised (SPSI-R) have found a significant relationship between various problem-solving dimensions and depressive severity or negative affectivity, cutting across a variety of sample populations (Nezu, 2004).

From a logistical standpoint, early motherhood requires an enormous amount of planning, organizing and resources. From the first days postpartum, new mothers are provided information regarding child seats, breastfeeding verses formula, pumping, baby sleep/eating schedules, proper care for her child (bathing, dressing, care of umbilical cord), pediatrician visits, lists of needed items, self-care instructions regarding childbirth/Cesarean Section, and a multitude of other vital concerns. At the same time, she is exhausted, possibly frightened, physically recovering and trying to establish a bonding relationship with her child. Women lacking problem-solving abilities premorbidly are at an obvious disadvantage, although even women with solid problem solving skills are vulnerable to poor decision-making in the first dizzying days of motherhood.

Factors impacting problem solving in new mothers include high levels of depression, fatigue, stress (Benoit, 1989) and poor quality of support (Bithoney, 1987). A study comparing
neuropsychological performance of 57 pregnant women with 50 non-pregnant women at weeks 14, 17, 29, and 36 and 32 weeks postpartum found that memory performance is lower during pregnancy and early motherhood, whereas general speed of information processing is affected during early motherhood only (Groot, 2006). In this study, midwives and hospitals in the southeastern part of the Netherlands recruited participants who were Caucasian, screening to eliminate women who developed postpartum depression and were in good health. The author openly reported selection bias as a potential weakness, although the large sample size makes chance results less probable. In addition, results were recorded in the form of tables outlining average results of the sample group verses the control group; it is therefore unclear how many women in the sample group did not evidence cognitive impairment. Although the results of this identified study are statistically averaged, the findings do support significant differences between groups. Therefore it suggests that limited processing speed and verbal memory could affect problem-solving skills of new mothers even in the absence of postpartum depression symptoms (Groot, 2006).

Groot’s study (2006) demonstrates that memory and processing speed are compromised in many new mothers even in the absence of a depressive episode. Women suffering with PPD are at an even greater disadvantage cognitively because a positive relationship exists between problem solving deficits and the mean duration of a depressive episode. Specifically, depressed patients evidence mild impairment with concept generalization and cognitive flexibility (Fossati, 2001). Negative affect has been shown to disrupt parental problem solving and the ability to reason clearly about childbearing conflicts (Emmerich, 1969). In addition, limited maternal
problem solving abilities are correlated with inadequate nurturing skills, leading to failure to thrive in infants (Robinson, 2001).

Problem solving in a hospital setting entails self-directed, cognitive-behavioral processing in which a mother identifies real-life problems, devises a set of solutions, selects a solution, implements it and then evaluates its effectiveness (Beck, 1995). Many patients, however, do not possess the skills needed to problem-solve on their own, requiring guidance and support through the process. Problem-solving therapy (PST) encourages a positive problem orientation (”I can do this!”) and models a healthy problem-solving style characterized by behavior directed toward changing the situation so that it is no longer problematic. Healthy problem-solving is attained by systematically examining each problem and its potential solutions, then choosing a solution and finally, evaluating the outcome (Chang, 2004).

The major assumption of the theory is that social problem-solving is a multi-dimensional construct consisting of several different components, including problem orientation and problem-solving styles. Problem orientation is a metacognitive process involving the operation of a set of schema that reflect a person’s general belief system. Orientation can be positive, meaning that the person is optimistic, possesses high self-efficacy, views the problem as a challenge, understands that success takes time and effort and is willing to commit oneself to the challenge. Negative orientation involves the tendency to view a problem as a threat, to exhibit low self-efficacy and to experience low frustration tolerance (D’Zurilla, 2004).

Problem-solving style refers to the activities that a person uses to understand, to find solutions and to cope with a problem. Rational problem-solving style is defined as deliberate, logical, and systematic. An impulsive-careless style is characterized by careless, hurried and
incomplete attempts to apply problem-solving strategies. An avoidance style is another dysfunctional style, which is characterized by procrastination, passivity or inaction, and dependency. Dysfunctional social problem solving is a process in which negative problem orientation contributes to an impulsivity-carelessness style or avoidance style, both of which are likely to produce negative outcomes. Successful problem-solving involves a positive problem orientation and a rational style to skills utilization (D’Zurilla, 2004).

Although the use of PST with postpartum women has not been documented in recent literature on the topic, PST with caregivers of cancer, stroke, and dementia patients found positive problem-solving strategies are associated with better outcomes related to depression, health problems and life satisfaction (Nezu, 2004). In a study by Barg et al. (1998), 89% of a sample of 750 caregivers of people with cancer reported feeling “stressed” by their responsibilities, and those who reported feeling stressed also reported significantly lowered self-esteem, less family support, more negative impact on their schedules, and more negative impact on their physical health. The goals of PST therapy with caregivers involved (a) enhancing care-giving skills and (b) minimizing the stressful nature of the care-giving role.

Several problem-solving interventions have been developed for caregivers of people with cancer (Nezu, 2003). Toseland et al. (1995) evaluated a protocol involving six individual counseling sessions that included both support and training in problem-solving and coping skills. Distressed caregivers who participated in the intervention reported significant improvements in their physical health, social functioning and ability to cope with pressing problems, compared with the control group. Houts et al. (1996) described a problem-solving approach to family caregiver education called the Prepared Family Caregiver Course, which was adapted from the
D’Zurilla and Nezu (1982) PST model. The course is taught over three, two-hour group sessions that include instructional videos, bibliotherapy focusing on problems associated with care-giving, and PST technique training for problem-solving. Results from a program evaluation using this approach indicated that 78% of the participants reported an improvement in their feelings of burden and stress and 48% reported using the plans for tiredness and depression in their caregiving (Houts, 1996). A weakness of this study is the lack of control group for comparison; therefore, well-controlled studies are necessary before making definitive conclusions about the potential efficacy of such an approach.

Given the similarities between caregivers of the ill and maternal caregivers (fatigue, loss of time for self, and responsibility), PST techniques could theoretically be successful in reducing depressive symptoms in postpartum women. Nezu (2004) stated, “Successfully solving problems can increase one’s sense of mastery or control, which, in turn, contributes to positive mental health”. Most of these programs have about six sessions of contact time, which is less than a typical course of therapy, but in a medical setting even that amount of time may be prohibitive. The success of programs with short-term problem-solving interventions raises the question of whether or not it is possible for a brief problem-solving intervention to be implemented successfully as a preventative measure for PPD or to increase utilization of treatment.

**Current Strategies in the Prevention of PPD**

A literature review of postpartum depression identifies numerous articles addressing prevention, screening and treatment of PPD, although only a few actually attempted to implement these strategies. All of the studies that did implement comprehensive treatment plans
are conducted in Britain, which is the historic epicenter of PPD research. It is interesting to compare approaches to PPD between Europe and America; in the latter nation, PPD is only now receiving enough attention to develop protocols in treatment. Europe utilizes many techniques to prevent and identify PPD such as telephone calls to home, routine screening at doctor visits, support groups, home visitors, “listeners”, specialized nursing, normalizing, and an aggressive referral program (Bradley, 2003). Cox and colleagues (2003) have taken a theoretical and “real world practice” approach to PPD care, believing that if at-risk women are identified early on, they will be included in what may be considered rather aggressive community care that is simply not available in the United States at this time. Although they provided empirical evidence regarding the decrease in PPD symptoms with use of screening, this phenomenon is produced in England where there is a network of treatment providers sensitive to the needs of postpartum women. There is no evidence to date supporting the carryover of screening and support on utilization of care in the United States, where such services and awareness are limited.

Holden suggests that the advantages of using a routine screen such as the Edinburgh Postnatal Depression Scale (EPDS) include early intervention, identification of PPD that may be overlooked by professionals, and avoidance of leaving women feeling singled out (Holden, 1996). Holden goes on to recommend three routine postnatal screens to assist in identifying the majority of women who develop PPD within the first 6 months, which is estimated to be 75% of women who eventually develop the disorder. Although other studies demonstrate empirical support for screening as a tool in identifying PPD, this study was the first to explore the effect of screening in conjunction with increased social support on utilization of mental health treatment to those identified. This study found that using the EPDS and supportive counseling visits led to
increased identification and diminished symptoms among depressed postnatal women. It is worthwhile to note that Holden’s study does not provide data providing percentages of women who participated in treatment. This assumption of treatment participation may be influenced by the fact that Britain in particular, has a long tradition of providing expansive, easily accessible services that may inherently increase the likelihood of compliance.

The abundance of literature providing theory, “real world experience” and requests for more research to address treatment of PPD have not addressed the possible connection between screening for PPD and increased supportive services with utilization of treatment. In the world of medical insurance and legislation, this information is required if treatment is to be viewed as scientifically valid and thereby financially and politically backed. Therefore, one purpose of this study is to provide a scientific understanding of the interaction between efforts to identify PPD and its ultimate influence on treatment.

**Characteristics and Beliefs Impacting the Utilization of Treatment**

Although little is known about the impact of screening or treatment interventions on the utilization of recommended care, it is clear that many women who would most likely benefit from treatment are not seeking assistance. It is estimated that more than half (53%) of women who experience depression within the first two weeks postpartum do not seek help from any source and only 25% seek professional help (McIntosh, 1993). Reasons for this reluctance include attributing depression to external and social pressures rather than viewing it as a medical illness; there is also the fear about the consequences of talking about their emotional states (Whitton, 1996).
Robinson and Young (1982) investigated the incidence of PPD and anxiety in mothers at six to eight weeks postpartum, and then offered additional treatment to women identified as depressed at six months. There was a 50% refusal rate, which was attributed to the stigma of psychiatric treatment, their beliefs that feeling depressed after childbirth was normal, and the inconvenience for some mothers to attend treatment (Robinson, 1982). Whitton et al. (1996) found that 97% of women suffering with PPD recognized that something was wrong, but only 32% believed that they were suffering with PPD. Over 90% of these women did not discuss their symptoms with a health professional. Overall, literature reveals a striking refusal to accept professional mental health treatment in women with PPD, ranging from 50-90%, which could be prevented with appropriate educational and supportive intervention (Whitton, 1996).

Characteristics of mothers refusing mental health treatment include low education level and young age. These women are more likely to schedule appointments when symptoms have escalated to an emergency situation, often presenting to the emergency department. In addition, the babies of these mothers suffer in terms of gestation, birth weight and difficulties in breastfeeding (Murray, 2003). In summary, it appears that there are a number of factors influencing new mothers’ decisions to refuse treatment including belief systems, lack of emotional awareness, logistical concerns and characteristics associated with low education and youth.

Treatment

According to current Pennsylvania legislation, the identification of PPD and the referral to PPD treatment begins in the maternity ward. Typically, a new mother is provided with a handout depicting the symptoms of PPD and a list of resources to seek treatment if she feels it is
indicated (House Bill No. 1488, 2005). After hospitalization, treatment approaches can be characterized as: pharmacological, psychological, combined pharmacological and psychological, social support (group, phone, home visitors), relaxation and hormonal (Boath, 2001).

A systematic review of literature related to treatment approaches for PPD concluded that medication management of PPD typically includes the use of Fluoxetine, Sertraline (Zoloft) and S-adenosylmethionine (Sit, 2006). A randomized trial of Sertraline versus Nortriptyline with 109 women with PPD found no difference in effectiveness at 4, 8 or 24 weeks. Psychosocial functioning improved similarly in both drug treated groups. The side effect burden of each drug was also similar, although of differing profile. Additionally, breast-fed infant serum levels were near or below the level of quantifiability for both agents (Wisner, 2006). Fluoxetine treatment was found to be significantly more effective than placebo, and in one study, treatment with Fluoxetine was as effective as four weeks of cognitive-behavioral therapy (Appleby, 1997).

The fact that most medications are excreted into breast milk has hindered women’s openness to take antidepressants. The benzodiazepine family has been thoroughly studied in breastfeeding mothers and on rare occasions, correlates with symptoms of lethargy, sedation and poor sucking.

The relatively smaller infant dose of diazepam is less than 9% of the maternal dose (Hale, 2004). If a sedative is required, the shorter half-life analogs such as lorazepam and midazolam are preferred, but long-term exposure is not recommended (Kanto, 1982).

Almost all the antidepressants have been studied in breastfeeding mothers, and in general, Zoloft, Luvox, and Paxil (SSRI’s) are the current mainstay of depressive therapy. Sertraline (Zoloft) appears to be the overwhelmingly preferred medication, because more than 50 infants
have been evaluated in numerous studies, with milk plasma levels at near undetectable rates (Hale, 2004). Other antidepressants reported as “safe” in a review of antidepressants and reported milk levels include amitriptyline, wellbutrin, and desipramine. Interestingly, Fluoxetine, a drug frequently prescribed for PPD, transfers into human milk in relatively higher concentrations but has not been associated with any reported side effects in a small number of studies. Celexa and Lexapro are associated with numerous cases of somnolence in newborns and Doxepine is considered unsafe because of reports of respiratory arrest and sedation (Hale, 2004).

Many women experience the first signs of depression during pregnancy, when all psychotropics cross the placenta. Fetal and neonatal exposure to psychotropics can be potentially teratogenic (Allison, 2004). A review of literature examining the effect of various psychotropic medications on the outcomes of pregnancy offer varying reports, between no effect and significant medical defects. In some studies, SSRI’s are associated with low birth weight, third trimester complications, preterm delivery and cyanosis upon feeding. Tricyclics have been associated with fetal tachyarrhythmia, urinary retention, and withdrawal. Antianxiety medications are linked to signs of withdrawal, hypotonia, and malformations. Mood stabilizers such as Lithium and Depakote increase cardiovascular risk, neonatal hypothyroidism, diabetes insipidus, and hepatic failure (Allison, 2004).

Although the potential side effects of medications on infant health are certainly concerning, it is important to note that contradicting studies exist, indicating a lesser degree of negative outcomes, particularly with SSRI type antidepressants. Allison (2004) also found three studies indicating no difference in birth defect rate, stillbirth, prematurity, birth weight and APGAR scores with use of Fluoxetine (Prozac) and Sertraline (Zoloft), (Allison, 2004). Overall,
SSRI’s seem to carry the least degree of risk to the infant, but tricyclics, antianxiety agents, mood stabilizers (Lithium) and antiepileptics are consistently associated with higher risk for pregnancy complications (Allison, 2004).

In the case of postpartum psychosis (PPS), symptoms typically present in the first 2-4 weeks postpartum with a rapid onset. Symptom presentation may be more overt and therefore is recognized, although in some cases subtle pre-psychotic symptoms are mistaken for “the blues” before full psychosis onset (Sit, 2006). Postpartum psychosis is usually treated pharmacologically and may require admission to a psychiatric unit until stabilized. In addition, the data suggest that PPS is an overt presentation of bipolar disorder that is timed to coincide with tremendous hormonal shifts during pregnancy. The cyclical presentation of psychosis, therefore, requires long-term medical management. Treatment includes antimanic agents, atypical antipsychotic medications and electroconvulsive therapy (Sit, 2006). The transfer of Haldol into milk is reported to be minimal (2.4%) and a number of new reports suggest that the newer atypical antipsychotics, such as risperidone and olanzapine, may be the better choice of therapy for breastfeeding mothers. Phenothiazines should be avoided in breastfeeding women because of associations with neonatal apnea and sedation (Hale, 2004).

There have been a number of studies examining the effectiveness of psychological and psychodynamic approaches to postpartum depression. In a pioneering, three month treatment trial in Edinburgh and Livingstone, Holden and colleagues (1989) screened a community-based population of newly delivered mothers using the Edinburgh Postnatal Depression Scale. Twenty-six women diagnosed with PPD were randomly assigned either to a treatment group condition receiving 8 weeks of psychotherapy by health visitors briefly trained in Rogerian
counseling, or to a control group condition receiving standard care. At the end of the study, 69% of the women in the counseling group no longer met criteria for a depressive disorder, compared with only 38% of the women in the control group (Holden, 1989). Another study of 41 women diagnosed with PPD in Sweden assigned participants to groups of six weeks of therapy by nurses briefly trained in non-directive counseling and a control group receiving standard care. They found that 12 of 15 women in the counseling group were no longer depressed after the six counseling sessions, whereas only 4 of 16 women in the control group were no longer depressed at follow-up, a highly significant difference (Wickberg, 1996).

Meager and Milgrom (1996) carried out a study in Australia comparing ten women treated, using a cognitive-behavioral group program consisting of educational support, social support and cognitive behavioral counseling techniques with 10 wait-list controls. They found a significant improvement in mood on the EPDS, BDI and Profile of Mood States (POMS) in the intervention group compared with controls (Meager, 1996). Support groups were also shown to decrease levels of depression in a study 29 Canadian women who met the DSM-IV criteria for major depressive disorder with postpartum onset. After six group sessions, consisting of psychoeducation and support from other mothers suffering with PPD, the women showed a significant decrease in depressive symptoms (using the EPDS), compared with women in the control group (Misri, 2000).

Current Trends in Postpartum Depression

Despite the media attention that PPD has received in the past decade and the harm done to the children of mothers with PPD, current standards for prevention in the United States are far less intensive than in many European countries. This standard may be due partly to a tendency of
the medical community in the United States to minimize the validity and occurrence of PPD. The DSM included PPD as an official mental disorder in the 1994 revision; this is years after empirical evidence supported its existence (APA, 2000). A study examining the views of medical students regarding PPD found that sixth year students underestimated the prevalence and duration of PPD significantly (Small, 1997). About 50% believed that the prevalence rates were between 0-9% and 57% believed the duration was in the range of 9-26 weeks. In reality, 50% of women suffering with PPD experience symptoms for six months to a year (Small, 1997).

Women also lack understanding regarding the causes, prevalence and duration of PPD, believing that PPD is caused solely by social, not biological and hormonal factors (Small, 1997).

Given higher than estimated prevalence rates and the lack of understanding regarding PPD, it seems that education for the medical community and the general public could potentially improve prevention and treatment of postpartum depression. To complicate the picture further, classification and diagnosis of PPD can be difficult in the best of circumstances because the standard diagnostic approach is to treat PPD as a form of Major Depression rather than as a separate disorder with specific causes and symptoms as some literature suggests (Cooper, 1995). Many experts in the field believe that interventions should be designed to reduce specific deficits found in PPD; this is difficult when PPD is classified as a form of major depression with symptoms that are not specific to PPD (Brugha, 1998).

Unclear diagnostic criteria and less than desirable understanding of PPD among the medical community has influenced the quality of assessment standards. A dissertation study conducted at the Massachusetts School of Professional Psychology evaluated medical providers’ knowledge about PPD and the importance they assign to screening and assessing women at risk
for PPD. Interviews were used and findings suggested that medical providers do not assess the women’s mental health in a standardized manner. The author went on to state, “Screening for PPD in both primary and secondary settings needs to be widely used to improve detection of PPD, promote prevention and foster early intervention” (Hoefliger, 2003).

Recent screening measures, such as the Edinburgh Postnatal Depression Scale (EPDS), include sensitive indicators that have provided insight regarding the degree of missed identification of PPD. When the EPDS was routinely implemented in a community-based clinic to 342 postpartum women, one year outcomes indicated that the rate of diagnosis of PPD increased from 3.7% to 10.7%. The authors of this study were also able to provide treatment to women identified with PPD; treatment included such measures as psychopharmacological intervention (49%), psychological counseling (78%) and hospitalization for four women (Georgiopoulos, 2001). Another study based in Asheville, NC compared the efficacy of routine clinical evaluation with that of the EPDS screening in a residency training program. Over one year, 391 patients were assigned either to screening with the EPDS (n = 79) or to a control group that had only spontaneous detection during routine clinical evaluation (n = 96). These authors reported impressive results: the incidence of detection of PPD with the EPDS was 35.4%, compared with an incidence of only 6.3% for spontaneous detection during routine clinical evaluation (Evins, 2000). A third study of 100 postpartum women completing the EPDS found that 39% of the women scored above the cut-off point for likely PPD, only one of whom had been identified previously (Barnett, 1993).

Ring & McLean, who conducted a study on effects of screening on diagnosis stated,
“At the outset of the study, we believed we had been adequately identifying and managing postnatal depression in our caseloads without using the EPDS. Routine screening identified the full extent of the problem and made us recognize that our previous approach had been patchy and therefore inadequate in meeting the needs of postnatally depressed women”.

Current trends in the treatment of PPD include increased attention from the public regarding the importance of identification and treatment of PPD; much of this attention served as a catalyst for recent legislation mandating routine screening in some states. Although many medical professionals lack understanding of PPD, some human error in diagnosis can be countered by the use of sensitive screening measures. These identified studies clearly illustrated the effectiveness of screening on the identification of PPD and subsequent treatment referrals. Unfortunately, most states continue to provide minimal education and treatment referrals as standard care with no follow-up or routine screening. In the end, it is questionable how many women are not receiving needed treatment, or what is and what can be done to improve treatment compliance.

**Previous Attempts to Compare Prevention Models**

There is ample empirical support suggesting that screening for PPD improves accuracy of diagnosis and therefore provides the opportunity to refer to treatment (Georgiopoulos, 2001; Evins, 2000; Barnett, 1993). There is also a body of literature examining the advantages and disadvantages of preventative interventions, although even the most thorough studies are qualitative and fail to determine if the preventative measures result in treatment compliance (Holden, 1989). The following studies by Holden and Elliott are considered pioneering work in
the examination of varying prevention methods. To date, there are no studies examining the
effect of preventative interventions on utilization of treatment. The following studies are
included in this literature review because they highlighted the effects of screening and supportive
care.

Training combined with counseling intervention and a trial of preventative measures was
implemented in Edinburgh, Stoke-on-Trent and Lewisham, London (Holden, 1989; Elliott,
1988). Prevention strategies included psycho-education, support groups, encouragement to use
services and use of the EPDS as a pre and post-test to measure outcome. The percentage of
women scoring high on the EPDS at 6 to 9 months was significantly reduced after
implementation of the program. Strategies such as early antenatal contact to establish a trusting
relationship, providing information about support for practical concerns such as babysitting,
reassurance about postnatal visiting and a follow-up postnatal visit to encourage discussion about
the birth experience and early experience of mothering were implemented. Women were also
reassured that continued support and counseling were available in the future, and resources were
provided.

Sandra Elliott published the most effective in-depth study comparing different screening
measures and their uses in real-life clinical practice (Elliott, 1994). This study compared six
approaches to PPD screening, using the Edinburgh Postnatal Depression Scale (EPDS), and
provided feedback from a discussion group examining the advantages and disadvantages of each
model. The six models included:
a) Using the EPDS only to confirm suspicion that a woman is depressed.

b) Computerized EPDS at 6 weeks postpartum where women identified as high-risk receive half hour listening visits.

c) EPDS at 6 months where high scorers are referred to mental health services with primary care physician.

d) EPDS at 6 weeks, 3 months and 6 months where high scorers are retested in one week. If still high, half hour weekly listening visits.

e) EPDS routinely in late pregnancy and 6 weeks postpartum.

f) EPDS routinely at 6 and 10 weeks postnatal where high scorers are referred to eight weeks of counseling and primary care physician is informed.

Overall, the participants (professionals) agreed that a combination of (d) screening at six weeks, at three and six months, followed by at-risk mothers participating in another screen and half-hour listening visits (e) screening late in pregnancy and at six weeks postpartum with no referral would be the preferred model of intervention. This would entail frequent, routine screening combined with visiting sessions with a trained “listener”. Model F was identified as providing the best referral system and treatment option (frequent screening with eight weeks counseling), although it was felt to be impractical for implementation. It was unclear if this model was deemed impractical because of a 10-week visit that did not coincide with routine visits to the PCP, or if such intensive treatment was difficult to implement. Although this study is not interested in whether or not women followed-up with the recommended treatment, it is the one and only of its kind to examine the advantages and disadvantaged of different models of prevention.
Conclusion of Literature Review

Depression during the postpartum period is a serious mental health concern for women, and its consequences have potentially devastating implications for the welfare of the family, mother, and infant development (Lynne, 1996; Cox, 2003). Children of depressed mothers are more likely to have delayed psychological, cognitive, neurological, and motor development, and are at higher risk for insecure attachment (Edhborg, 2001; Field, 1995; Abrams, 1995). PPD affects the quality of a woman’s life, her child, other children, partner and everyone involved in her care (Cox, 2003). The consequences of maternal depression are costly not only on a personal level, but also in terms of health service resources and finances. It is therefore important that services should be research-based and focused on prevention.

Postpartum depression has been recognized by the *Diagnostic and Statistical Manual of Mental Disorders* since the 1994 revision under major depressive disorders (APA, 2000). Historically, the “discovery” of PPD remains a mystery, although mention of psychiatric illness following childbirth dates as far back as 1839 (Esquire, 1839). Although the prevalence rate of PPD ranges from 10-20%, a meta-analysis of rates of non-psychotic PPD demonstrated a rate of 13% (O’Hara, 1996).

A meta-analysis of risk factors associated with PPD indicates numerous risk factors including: prior history of psychopathology (including during pregnancy), poor social support, and stressful life events (O’Hara, 1996). Some at-risk women may possess a genetic susceptibility to mood changes; these may be secondary to hormonal changes that occur postpartum (Cox, 1994). Social support, perceived as inadequate, is consistently correlated with the development of PPD and increased support, early postpartum, by medical staff has been
shown to decrease PPD severity (Holden, 1988). There is compelling evidence that adverse life events and certain stressors specific to motherhood increase the risk of PPD (Swendsen, 2000). In addition, women who lack problem-solving abilities to cope with stressful life events are more vulnerable to developing PPD because they lack the skills necessary to navigate early motherhood effectively.

Currently, prevention methods utilized in Pennsylvania maternity units are provided on a routine basis and comply with House Bill No. 1488, which was implemented in 2005. This bill mandates intervention consisting of education regarding PPD symptoms and referrals to mental health providers, although no formal screening is implemented. The aim of this standard of care is to identify women in need of care and guide them to appropriate treatment, although in reality, this is unlikely, given lack of screening, no follow-up interventions, a lack of assistance with financial and practical barriers and reliance on subjective interpretation of a clinical disorder.

From a clinical and legislative perspective, identification of women in need of treatment for postpartum depression and increasing rates of treatment utilization are primary healthcare initiatives. Rates of non-compliance typically range from 50-53%, although rates as high as 90% have been reported (McIntosh, 1993; Robinson, 1982; Ramsay, 1993 & Whitton, 1996). To date, there is no evidence to support the carryover of screening and support on utilization of care in the United States, where such services and awareness are limited, compared with Europe. It is the aim of this study to examine the effect of varying interventions, early postpartum, on utilization of treatment, rates of depression and perceived support.
Hypotheses

In this study, women were randomly assigned to one of four conditions where group 1 received standard care (education and referral handout); group 2 received standard care and the EPDS with feedback; group 3 received standard care and a problem-solving exercise, and group 4 received standard care, the EPDS with feedback, and the problem-solving exercise. All interventions groups (2, 3, and 4) were also provided with brief education about PPD highlighting different types of depression, the etiology of PPD and treatment effectiveness.

I. Subjects in Group 4, who receive both the EPDS and problem-solving exercise, will demonstrate higher rates of utilized treatment than women in any other group.

II. Subjects in Group 3, receiving problem-solving assistance will utilize recommended treatment more than women receiving only standard care (Group 1).

III. Subjects in Group 2, receiving only the screening via the EPDS, will utilize more recommended treatment than the standard level of care.

IV. Subjects in Groups 2, 3 and 4, who receive screening and/or problem solving, will demonstrate lower levels of depressive symptoms than Group 1, who receive only standard interventions.

V. Subjects exposed to conditions in Group 4 (EPDS and problem solving) will report feeling more highly supported according to the Brief Measure of Social Support (BMSS) than Group 1, 2 or 3.

VI. Subjects in Group 3 (problem solving) will report feeling more highly supported according to the BMSS than Groups 1 (standard) or 2 (EPDS).

VII. Subjects in Group 2 (EPDS) will report feeling more highly supported according to the SSQ than Group 1 (standard).

VIII. At post-test, subjects with higher rates of negative life events according to the Recent Life Events Questionnaire (RLEQ) will also demonstrate higher rates of depressive symptoms on post-test screening using the Postpartum Depression Screening Scale (PDSS).
IX. Subjects in Groups 3 and 4, who receive problem solving assistance, will report lower levels of perceived negative life events via the RLEQ at post-test than groups 1 or 2.

Secondary Hypotheses

a. Is there a relationship between life events and utilization of services? It is hypothesized that higher rates of negative life events will correlate with lower rates of treatment utilization.

b. Is there a relationship between negative beliefs regarding PPD and utilization of care, perceived social support and depressive symptoms? It is hypothesized that higher rates of negative beliefs regarding PPD will correlate with lower rates of utilization of treatment and perceived support, and higher rates of depressive symptoms.

c. If group differences exist between negative life events and the dependent variables, then an analysis of covariance will be performed, where life events are the covariate. If there are no group differences between these groups, no further analysis will be performed.
Methods

Subjects

Approval was obtained from the Philadelphia College of Osteopathic Medicine’s academic internal review board and Memorial Hospital’s internal review board. In addition, the attending physicians on the maternity unit held a meeting to discuss concerns regarding liability. They requested additional safeguards such as securing treatment within one day of intervention for women screened as “clinically significant”. Arrangements were made to accommodate the attending physicians’ requests and the responsible investigator completed the registration procedure through human resources to conduct research on the maternity unit.

Women presenting to the Memorial Hospital maternity unit immediately postpartum during the period of March 5, 2009 to August 31, 2009 were invited to participate in a study examining the effect of screening, problem solving and support on levels of depression, utilization of recommended treatment and perceived support at eight weeks postpartum. Participants were included if they meet the following criteria:

I. Delivery of an infant regardless of type (cesarean, natural, epidural, forceps, induced).

II. Delivery of a live infant as opposed to stillbirth or miscarriage.

III. Delivery in a hospital setting (Memorial Hospital in York, Pennsylvania).

IV. Fluency in English due to lack of interpreters for post-tests. Literacy is not an issue because the EPDS can be read to the patient and other measures are read over the phone during post-tests.

V. Intention to remain a resident of York, Pennsylvania for the duration of the study (About six months).
VI. Willingness to participate in the study as evidenced by an informed consent and proper releases.

There was some concern about whether or not to include women experiencing a variety of labor and delivery factors such as complications, extent of mothering expertise, history of mental illness, infant feeding choice (breastfeed verses formula), birth defects, infant birth weight, perceived experiences with previous children, and decision by the mother to return to work and/or be the primary care giver. Risk factors such as previous depressive episodes and age were also considered with regard to inclusion criteria. After careful consideration, it was determined that controlling for these variables decreases external validity. Therefore, the previously identified labor, delivery and risk factors are included in the study to create a sample that best represents the current population served.

Sample Size

A total of 49 women fulfilled these criteria, but 1 (2%) refused to take part in the study. Therefore, a total of 48 women participated in the intervention phase of the study. Of the 48 who participated, 40 were reached for the posttest phase of the study. Attrition attributed for 8 (16.7%) of the sample. The attrition group consisted of two from groups 1 and 2, and four from group 4. Attrition was due to an inability to contact the subject, either via the number having been disconnected or repeated attempts to call that were unsuccessful.

Women were randomly recruited from the Memorial Hospital maternity unit in York, Pennsylvania within 2 days, post-delivery. This maternity unit averages 80 new mothers a month and records indicate a total of 820 new mothers in the year of 2004. During the early stages of the studies development, it was believed that three months of data collection would be
sufficient, and the sample and effect size was calculated using this estimate. Therefore, it was estimated that in three months of primary data collection, approximately 150 of 240 new mothers would realistically meet the relatively lenient inclusion criteria and agree to participate in the study. Sample size was determined by examining the probability of Type I Error (\(\alpha\)), the probability of a Type II Error (\(\beta\)), and their interaction on a chart calculating sample size on One-Tailed Significance Tests (Shavelson, 1996). At an alpha level of .05 and effect size of .275, a reasonable sample size was calculated at 98. It was therefore estimated that of 150 participants, at least 100 would remain after attrition, leaving 25 in each group. This estimate would be sufficient to produce significant results, if they exist.

Through the course of data collection, problems became apparent regarding the sample size and effect size. First, data collection proved to be more time consuming than anticipated because of difficulties coordinating patient availability, which was very inconsistent, with the responsible investigator’s scheduled availability for data collection. Second, during data collection, issues pertaining to prevalence of PPD and effect size came to light. If PPD were 100% prevalent among postpartum women, a sample size of 100 would have been appropriate. Given that an estimated 10-20% of women suffer with PPD, a much larger sample would be required to provide statistically significant results, if they exist. It is estimated that a sample size of 1500 would provide adequate effect size in a larger scale study. Because of the time and financial constraints of a dissertation study, extending the project to a large scale to provide adequate effect size was not possible. Therefore, the study was refined to a feasibility study to support a larger scale, grant-funded study in the future.
Setting & Regional Demographics

This study was completed at Memorial Hospital in York, Pennsylvania, which is a relatively small, osteopathic hospital known for its emphasis on personalized patient care. It is conveniently located to allow for daily collection of data and urgent attention if required. Participants were recruited directly from the Memorial Hospital maternity unit. York is a city well known as a close-knit community consisting of multigenerational German/Irish family units and longstanding friendships. The 2000 Census Report for York County reports a population of 380,000 and a median household income of $45,266. Eighty percent of residents have a high school diploma and the major areas of employment are manufacturing and retail industries. Prominent religious (Christian) and political (Republican) views, combined with a relatively moderate level of socioeconomic and educational backgrounds may result in a rigid, conservative belief system (McGoldrick, 2005).

The 2000 Census reports a racial profile of 92.8% white, 3.7% Black, 3% Latin, 3% American Indian and 2% Asian, far less diverse than the average American city. Among the residents, 38.8% are of direct German decent; 11% are of Irish decent, and 7.6% are English. According to Ethnicity & Family Therapy (2005), there is a cultural tradition for individuals of Irish decent to believe that problems are a private matter between themselves and God. Because of this belief, they may prefer to suffer alone or consider personal problems a source of embarrassment. Similarly, Germans may feel that discussing problems or entering therapy violates the tacit rule of “Do it yourself”. The author goes on to propose that some individuals of German and Irish descent many avoid treatment until the problem has reached a crisis (McGoldrick, 2005).
Given the regional and cultural influences of the sample population, it is reasonable to expect a degree of difficulty in the recruitment and cooperation of subjects. Although cultural influences may present as a challenge, it is important to consider individual differences in beliefs, the effect of mixed cultural backgrounds that may soften some of the traditional beliefs, and generational factors such as years of settlement in the United States. McGoldrick (2005) highlights the lack of cultural identification in third and fourth generation Americans in her text, stating,

“An increasing number of White ethnics who have married outside their own group now think of themselves simply as “Americans” and often are unaware of, and uninterested in, their mixed European heritage (McGoldrick, 2005).”

At the same time, some areas of resistance to participate in the study may be mediated by the significant emotional and physical impact of childbirth and parenting. Although awareness of cultural, regional and situational factors are essential in determining their potential impact on obtaining an acceptable sample, it is likely that the buffering effects noted will result in a reasonable sample turnout. Certainly, it will be prudent to be culturally sensitive during recruitment by validating and honoring patient beliefs and consent decisions.
Design

Experimental Condition

Participants were randomly assigned into one of the four treatment conditions, each representing an experimental condition that will possibly impact utilization of treatment, level of depressive symptoms, and perceived level of support. Interventions included standard care (educational handout on PPD and a treatment referral list), the EPDS, and a standardized brief problem solving intervention designed to be supportive. In addition, the three intervention groups received a brief education regarding the types and causes of PPD and of treatment effectiveness. The groups were designated as follows:

- Group 1 = Standard care.
- Group 2 = Standard care and EPDS. (Education)
- Group 3 = Standard care and problem solving. (Education)
- Group 4 = Standard care, EPDS and problem solving. (Education)
The overall design of the study will appear as follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pre-Test</th>
<th>8-Week Posttest Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong></td>
<td>- Patient Information</td>
<td>PDSS</td>
</tr>
<tr>
<td>Standard Care</td>
<td>- Release of Information</td>
<td>Belief / Utilization?’s</td>
</tr>
<tr>
<td></td>
<td>- Consent</td>
<td>BMSS</td>
</tr>
<tr>
<td></td>
<td>- Education/referral handouts</td>
<td>RELQ</td>
</tr>
</tbody>
</table>

| **Group 2**      | - Patient Information                                                   | PDSS                    |
| EPDS + Education | - Release of Information                                                 | Belief / Utilization?’s |
|                  | - Consent                                                                | BMSS                    |
|                  | - Education/referral handouts                                            | RELQ                    |
|                  | - EPDS screen w/feedback                                                 |                         |
|                  | - Brief Education (Types of depression, etiology, and treatment effectiveness) |                         |

| **Group 3**      | - Patient Information                                                   | PDSS                    |
| PS + Education   | - Release of Information                                                 | Belief / Utilization?’s |
|                  | - Consent                                                                | BMSS                    |
|                  | - Education/referral handouts                                            | RELQ                    |
|                  | - Problem solving worksheet                                              |                         |
|                  | - Brief Education (Types of depression, etiology, and treatment effectiveness) |                         |

| **Group 4**      | - Patient Information                                                   | PDSS                    |
| EPDS + PS + Education | - Release of Information                                                 | Belief / Utilization?’s |
|                  | - Consent                                                                | BMSS                    |
|                  | - Education/referral handouts                                            | RELQ                    |
|                  | - EPDS screen w/feedback                                                 |                         |
|                  | - Problem Solving worksheet                                              |                         |
|                  | - Brief Education (Types of depression, etiology, and treatment effectiveness) |                         |
Posttest

The posttest was administered via phone at eight weeks postpartum to provide information regarding symptom progression, utilization of treatment and perceived support. It included a brief assessment of treatment utilization and beliefs regarding PPD (See Appendix A), the Postpartum Depression Screening Scale (PDSS), the Recent Life Events Questionnaire (RLEQ) and the Brief Measure of Social Support (BMSS).

Variables

Independent variables include:

- Survey Measure (EPDS)
- Problem Solving (Problem Solving Worksheet)
- Normalize/Validate feelings (Support)

Dependent variables include:

- Number of women utilizing services.
- Level of Depressive Symptoms (PDSS)
- Perceived level of social support (BMSS)

Potential Moderator Variables include:

- Negative Life Events
Measures
Four measures were used in this study, the Edinburgh Postnatal Depression Scale (EPDS), the Postpartum Depression Screening Scale (PDSS), the Recent Life Events Questionnaire (RLEQ) and the Brief Measure of Social Support (BMSS). In addition, the Patient Information Form (PIF) was developed to acquire information regarding utilization of treatment during the post-test, and the problem-solving worksheet was developed for the problem-solving exercise for Groups 3 and 4. The following section aims to provide the validity, reliability, and rational for their selection. In addition, specific information regarding the development of the measures is included for historical reference.

The Edinburgh Postnatal Depression Scale (EPDS)
The development of the Edinburgh Postnatal Depression Scale (EPDS) was initially described in 1987 by Cox, who later published his findings in *Prenatal Psychiatry* in 1994 (Cox, 2003). The EPDS is the most widely used scale for measuring postpartum depression. It is a valid scale, boasting an 86% true positive rate on a consistent basis in differing cultures. Split half reliability was .88 and the standardized alpha coefficient was .87, suggesting an impressive reliability (Cox, 2003). The EPDS is composed of ten questions addressing mood, anhedonia, internalization of feelings, anxiety, ability to cope, sleep, and self-harm. A cut-off of 9/10 is recommended to identify most cases of depression, especially in research projects when the EPDS is being used as a first-stage screening scale. Also relevant to this study, the EPDS is useful in the secondary prevention of postnatal depression by identifying early onset of symptoms (Cox, 2003; Cox, 1994).
The EPDS was found to yield a sensitivity of 95% and a specificity of 93%, which was significantly superior to the BDI, which had a sensitivity of 68% and specificity of 88% (Harris, 1989). Another study compared the EPDS and the Hamilton Rating Scale for Depression (HRSD) and found the EPDS superior in sensitivity (Thompson, 1998). The manual for the EPDS suggests any trained visitor; nurse, midwife, mental health worker or doctor can administer it. It is best administered by a health professional that is familiar with mental health problems and educated about those actions which are required for significantly high scores. Unlike the PDSS, the EPDS can be administered as a routine screen immediately postpartum. In fact, it has been shown to be an effective screening measure for pregnant women, fathers and parents of toddlers, in addition to women, postpartum (Cox, 2003).

It has been shown that false-negatives are reduced by private administration because women may wish to cover up their feelings from family, from fear sigma or the shame of not coping (Cox, 2003). Suitable accommodations and privacy are required so that women can complete the scale without being pressured. Confidentiality needs to be respected as well, by providing a secure box where the women may place the completed forms. As part of the informed consent, it is essential that subjects be informed of the intended use of the screen, who will review it and what will happen if they score above the threshold.

It is important to remember that a single EPDS score above the threshold does not indicate that an individual has depression; only that sufficient depressive symptoms are present to make this likely. The EPDS manual suggests that screening be used in conjunction with a clinical interview to discuss responses, concerns and understanding of the disorder. In addition,
two high scores separated by at least two weeks, plus an interview, will usually confirm a diagnosis (Cox, 2003).

In the United States, Beck and Gable performed a comparative analysis of the Postpartum Depression Screening Scale (PDSS), the EPDS and the Beck Depression Inventory-II (BDI-II). They found that in a sample of eighteen women diagnosed with PPD, the PDSS identified 17 (94%); the EPDS identified 14 (78%), and the BDI-II identified 10 (56%). These results indicate that the PDSS demonstrates the best specificity, although it is important to note that the cutoff score used for the EPDS was 12 rather than the recommended 9, which would have increased the EPDS’s predictive value (Beck, 2001). Of the three, both the PDSS and the EPDS are valid and reliable screening measures, but the BDI-II lacked the specificity needed to evaluate women for PDD.

From a socio-cultural perspective, the EPDS is by far the most sensitive screen for PPD available. The EPDS manual includes translations for twenty-one languages, all of which have been empirically validated in those respective cultures. These languages include Arabic, Chinese, Czech, Dutch, French, German, Greek, Hebrew, Hindi, Icelandic, Japanese, Maltese, Norwegian, Portuguese, Punjabi, Slovenian, Spanish, Swedish, Urdu and Vietnamese (Cox, 2003; Clifford, 1999). The list is quite impressive when one considers diverse cultural beliefs about postpartum depression. For the purpose of this study, only English versions are used due to a lack of translators for posttest conditions.
The Postpartum Depression Screening Scale (PDSS)

The PDSS is designed to assess the presence, severity and type of postpartum depression symptoms. Questions are presented in a likert-type, 5-point response format and were developed from real life statements from women diagnosed with PDD. In this respect, it is more sensitive than any other screening measure for PPD published. It is a 35-item self-report instrument that can be completed in 5-10 minutes and requires a 3rd grade reading ability. During the development of the PDSS, questions were reworded to reflect the experience of a new mother. For example, questions addressing sleep are worded in the context of sleeping while caring for an infant. The PDSS provides content scales for the following symptoms: Sleep/Eating, Anxiety/Insecurity, Emotional Liability, Mental Confusion, Loss of Self, Guilt/Shame, and Suicidal Thoughts. It also includes a measure for Inconsistent Responding (INC), which is used an indicator of response validity (Beck, 2002). Final publication of the PDSS was printed in 2002 and is widely accepted as a valid and reliable measure for PPD (Beck, 2002).

The PDSS should be administered to the new mother no earlier than 2 weeks postpartum. Unlike the EPDS, it cannot be used during pregnancy or administered to fathers because of the specific nature of the questions. The first seven items may be administered separately as a short-form, although this option may not adequately measure major postpartum depression. The results of the PDSS are presented in a detailed symptom profile according to the content scales. This profile is individualized and intended to provide specific information regarding the nature of the depression to correspond with individualized treatment planning.
The results of the PDSS are meant for screening purposes only, not as a sole basis for diagnostic and treatment decisions. Although a paraprofessional can administer the PDSS, interpretation of the results should be supervised by a trained professional (Beck, 2002). As with any screening measure for PDD, it is imperative that the process be introduced in a non-threatening, sensitive manner. If women feel accepted by the interviewer and understand the intention of the screen, they are more likely to respond in an honest manner.

The total PDSS score is interpreted by means of ranges from:

- 35-59 (Normal Adjustment)
- 60-79 (Significant Symptoms of PPD)
- 80-175 (Positive Screen for PPD)

Any score equal to or above 60 requires a clinical interview to further assess safety concerns and treatment planning. When interpreting the PDSS, content score profiles provide detailed symptom characteristics of the individual and each content scale is accompanied by a cut-off score to indicate significant findings. When scores are found to be significant, the next step is to examine each question within the content scale and discuss these with the patient. If the SUI (suicidal) content scale is greater than or equal to 6, a psychiatric consult is required as soon as possible to determine safety and appropriate level of care.

Reliability of the PDSS has been tested extensively by the developers of the measure, finding an overall internal consistency of .98 (alpha coefficient). This is a superior result, given that it is generally agreed upon that a measure of emotional construct should have a minimum coefficient alpha of .70 (Nunnaly, 1994). The content validity of the PDSS was established
using two expert rater studies and interpreted according to the content scales. Content validity of the scales ranged from .74 to .93, demonstrating moderate to high correlates. When compared with other scales of depression, convergent validity yielded a score of \( r = .81 \) with the BDI-II, \( r = .79 \) with the EPDS, and \( r = .70 \) with the SCID clinical interview (all \( p < .0001 \)). These finding indicate that the PDSS is a highly reliable, valid measure (Beck, 2002).

**Rationale For Screening Measures**

Two separate PPD screening measures were selected for the pretest and posttest. There are four reasons for this decision:

- Use of two screening measures that are both supported by empirical data as valid and reliable, increase the reliability and validity of this study’s findings,
- The EPDS is recommended for use at any period of the pregnancy or postpartum period, making it the only screening measure appropriate for early postpartum.
- The PDSS is recommended for use only after 2 weeks postpartum, making it appropriate for the posttest.
- The PDSS is the more specific of the two, containing questions that are tailored as a measurement after 2 weeks postpartum. Many questions on the PDSS would simply not apply early postpartum.

The original intent was to devise a screening measure that combines two validated and reliable measures, although the timing of data collection ultimately determined each measure’s use in the study. Results of the EPDS and PPDS will be compared in the statistical analysis, using cutoff points suggested by the authors of the two screens. Because the EPDS and PDSS
have acceptable convergent validity (.79), and there was no other method available to screen at different postpartum periods, it was determined that use of both measures is acceptable.

**The Recent Life Events Questionnaire**

Psychiatrists Thomas Holmes and Richard Rahe initially examined the connection between medical conditions and stressful life events in 1967. They developed the Social Readjustment Rating Scale (SRRS) through a process of surveying patients who were asked to tally a list of 43 life events based on a relative score (Chatterjee, 2004). Each stressor is assigned units called “Life Change Units” that apply to events in the past year. A total score of 300+ is considered “at risk of illness”; 150-299 is 30% less risk and 150 and below is slight risk. Interestingly, if the units of a typical new mother are summed, (Pregnancy =40, Change in financial state = 38, Change in living conditions =25, Revision of personal habits = 24, Change in working hours = 20, Change in social activities = 18, Change in sleeping habits = 16), the result is a score of 181, falling in the moderate risk of illness level. According to this scale, if any additional significant stressors such as marital separation (65) or death in the family (63) were to occur, a new mother would quickly fall into the at-risk for medical illness range (Holmes, 1967).

Although the SRRS is a well known scale of social readjustment to stress, it could be viewed as unreliable because it asks participants to look back at their life events, making the data retrospective and subject to perceptual bias. A study by Rahe (1970) was carried out to test the reliability of the SRRS as a predictor of illness. The scale was given to 2,500 US sailors, who were asked to rate scores of life events over the six months. During this time, detailed records
were kept of the participants’ health. There was a +0.118 correlation between stress scale scores and illness. Although the correlation is small, it is significant and supports the hypothesis of a link between life events and illness.

The postpartum period is a period of adjustment to many new life events specific to the caregiving role. The Recent Life Events Questionnaire (RLEQ), developed in 1985, comprises 21 Yes/No items, and aims to examine recent life events, those occurring in the past 12 months, including whether or not the respondent believes these have a continuing influence (Brugha, 1985). Although the SRRS is the most well known of the social readjustment scales, the RLEQ is specifically designed to address the needs of primary caregivers and is easily administered in a hospital setting. Therefore it was chosen as a posttest measure in this study to examine the correlation between recent life events and utilization of care, perceived support and level of depression.

**The Brief Measure of Social Support (BMSS)**

Irwin Sarason (Sarason, 1987) developed the Brief Measure of Social Support (BMSS), a shorter version of the Social Support Questionnaire, in 1987. It comprises 12 items that yield scores for perceived numbers of social supports and satisfaction with social support. The original Social Support Questionnaire (SSQ) comprised 27 items, although the brief version demonstrated acceptable test-retest reliability, and correlated on variables similar to those on the SSQ (Sarason, 1987). After careful consideration, it was determined that a briefer screen, such as the BMSS, would yield valid results while reducing the likelihood of attrition. Similar to the RELQ, it was also a better choice from a logistical standpoint.
Problem-Solving Worksheet

The experimental condition also includes a problem-solving component, which involves the use of problem solving therapy techniques in a face-to-face intervention that is designed to be supportive in nature. The problem-solving intervention took approximately 30 minutes to administer. The Problem Solving Worksheet (Appendix) was developed from problem-solving therapy techniques in the D’Zurilla model (D’Zurilla, 1971). It is a standardized, cognitive-behavioral intervention designed to a) make available a variety of potentially effective solutions for barriers to treatment and b) increase the probability of selecting the most effective solution from among the various alternatives by examining each alternative collaboratively with the participant.

There were two sections of the problem-solving worksheet, one intended to identify barriers and one structured page of problem-solving including problem identification, solution generation, and choosing the best solution to formulate a plan. Although beliefs were not specifically identified on the first page of the problem-solving worksheet, they were addressed on the patient information form. The identified beliefs were then addressed on the problem-solving page and processed in an attempt to create the most favorable conditions for follow-through of treatment and reduction of practical and belief based barriers to treatment.

The goals of this intervention are to:

I. Assist new mothers in the identification of potential barriers to utilization of treatment (the problem). Problems may be related to real world barriers such as transportation, finances, childcare, insurance and so forth.
II. Generate possible solutions to these barriers by brainstorming, examining family and community resources, and facilitating a positive approach to problem solving (“you can do this” perspective).

III. Briefly educate the participant about the effectiveness of a positive, strategic and logical approach to successful problem solving.

IV. Provide a supportive approach throughout the intervention by normalizing and validating fears/concerns surrounding new motherhood, PPD and psychological treatment while focusing on the inherent strengths of the individual.

Patient Information Form

The Patient Information Form (PIF) was developed to document demographic information on each subject, explore beliefs regarding PPD, and obtain posttest information about utilization of treatment. The brief assessment of treatment utilization consisted of a standardized set of questions, which are included in the PIF (Appendix A). The goals of this section of the form are to determine:

I. If the subject was advised to seek treatment based on her experimental condition and the results of her EPDS (if administered).

II. If she attempted to seek treatment, and if not, why?

III. If she participated in treatment, and if so, was it perceived as helpful?

IV. If the subject participated in the problem-solving exercise, was it seen as helpful?

V. What does the subject feel would have been helpful?
VI. What beliefs regarding PPD and psychological treatment may have been influential?

The remainder of the posttest data was collected during the same phone interview and required approximately 10-30 minutes to administer, depending on the condition.

Procedures

Women were approached on the maternity unit between one and two days postpartum by the responsible investigator, depending on medical clearance. They were invited to participate in the study and provided with consent information that encouraged an informed choice regarding participation. After the informed consent and needed releases were signed, participants were randomly assigned into one of four groups using a sampling table. Data collection was conducted over a period of five months, and 48 participants were obtained, as deemed adequate for a feasibility study by the Philadelphia College of Osteopathic Medicine internal review board.

The “Patient Information Form” (PIF) was completed to document demographics, possible confounding variables, and condition assignment (See Appendix A). In addition, the PIF included a section for posttest data collection. A folder for each participant was initiated at this time, which housed all forms pertaining to the participant. A data summary sheet was also initiated to monitor each subject’s status in the study and to facilitate data analysis.

All participants received standard care as stipulated by government regulations, including an educational handout about postpartum depression and a list of treatment referrals to utilize if the patient felt it was necessary. Those assigned to experimental conditions received the
corresponding intervention assigned to their group. If a participant requested additional intervention beyond that offered by the study, she was provided with the referrals necessary to meet her needs. If a participant decided to no longer take part in the study at any time, her request was immediately honored in a sensitive manner. All completed forms and requests were added to the participant’s folder.

All women met the inclusion criteria previously stated. Screens, education and problem solving interventions were offered in a private area in a manner that ensured confidentiality, such as patient room or conference room in the case of roommates. The hospital supporting the study provided single rooms, excluding the concern regarding roommates. If a participant declined privacy options, family was permitted to be present. All subjects, regardless of condition, received contact information for the investigators to afford the opportunity to acquire feedback, referrals for treatment and/or any other form of support requested. Postpartum screens were scored on the day of its completion and appropriate measures were taken for results indicating the need for intervention, such as a positive screen or suicidal ideation.

A cut-off of 9 was held as the threshold for clinically significant depressive symptoms, which is recommended by the authors of the EPDS in a research setting (Cox, 1987). The two conditions receiving the EPDS also received formal feedback from the responsible investigator informing them of their results and suggested treatment options. The responsible investigator, patient, and attending nurse signed the feedback form, acknowledging acquisition of results. The score ranges are defined as follows:

a) Non-Clinically Significant Symptoms (0-8)

b) Clinically Significant Symptoms (9+)
In the case of suicidal ideation (#10 endorsed on the EPDS), the agreed upon procedure stipulated that the hospital staff psychotherapist would be informed; he or she would then be responsible to implement standard procedures for such a situation, such as a psychiatric consultation or mobile crisis consult. In the case of this study, none of the participants positively endorsed the question regarding suicidal ideation. If screen results indicated clinically significant symptoms without suicidal or homicidal ideation, the patient was offered a consult by the staff psychotherapist within 24 hours. The patient reserved the right to decline the consult. A referral for outpatient counseling was also provided, with the ability to schedule within one week of discharge from the hospital. If the patient decided to decline the consult or referrals, she indicated so on the “Postpartum Depression Screen Results” form. The patient, investigator and a witness (nurse on duty) signed the form indicating if the recommendations were accepted or declined.

It is imperative that hospital staff understand the study, methods used and importance of following guidelines. Additional encouragement was required, given the demands of medical staff positions and the magnitude of information they process on a daily basis. On each day of data collection, the responsible investigator informed the nurses on duty of the study’s methods and their involvement, if any. The nursing staff was very supportive of the study and provided their services with enthusiasm. Although the option to decline participation in the study was offered, none of the nurses accepted the option.

The responsible investigator checked in frequently with staff to determine if participants were available. After consent and confidentiality forms were completed, the patient information form was initiated and the participant was assigned to a condition. All participants were
informed of the specifics regarding their participation in the study, including posttest involvement. The following procedures applied for the conditions:

- **Condition 1**: The responsible investigator notified nursing staff of the participant’s involvement in the study. The patient information, consent, and release of information forms were completed. Participants received standard care via nursing staff, including an educational handout about PPD and a list of potential treatment referrals as mandated by the state.

- **Condition 2**: The responsible investigator notified nursing staff of the participants’ involvement in the study and standard care procedures (educational handout and referral list) were implemented. The patient information, consent, and release of information forms were completed. Brief psycho-education was provided. Participants were given the EPDS by the responsible investigator, who immediately scored the protocol and provided standardized feedback including suggested treatment options for positive screens. The participant, responsible investigator and attending nurse signed the EPDS feedback form. The results of the EPDS were placed in the participant’s folder and locked in a secure file cabinet until posttest data collection.
• **Condition 3:** The responsible investigator notified nursing staff of the participant’s involvement in the study and standard care procedures were implemented. The patient information, consent, and release of information forms were completed. Brief psycho-education was provided. Participants completed a standardized brief problem-solving intervention that included identification of barriers to treatment, generation of possible solutions, brief education regarding the impact of positive approach to problem-solving on successful outcomes, and infused support through validation and normalization of feelings. The participant was provided with a copy of the problem-solving form and the originals were placed in the participant’s folder, which was then placed in a locked cabinet until posttest data collection.

• **Condition 4:** The responsible investigator notified nursing staff of the participant’s involvement in the study and standard care procedures were implemented. The patient information, consent, and release of information forms were completed. Brief psycho-education was provided. Participants were provided with the EPDS by the responsible investigator, who immediately scored the protocol and provided standardized feedback including suggested treatment options for positive screens. The participant, responsible investigator and attending nurse signed the EPDS feedback form. The responsible investigator then conducted a standardized brief problem-solving intervention that included
identification of barriers to treatment, generation of possible solutions, brief education regarding the impact of positive approach to problem solving on successful outcomes, and infused support through validation and normalization of feelings. The participant was then provided with a copy of the problem solving form and the originals were placed in the participant’s folder, which were then placed in a locked cabinet until posttest data collection.

The responsible investigator obtained posttest data via phone interview at eight weeks postpartum. Information regarding utilization of treatment, PPD beliefs, and results of the PDSS, RLEQ and BMSS were documented on the Patient Information Form and all protocol materials were placed in the participant’s file. Scores of 60 +, SUI content score >6, or endorsed suicidal ideation on the PDSS during posttest were documented and a brief risk assessment was performed. If there was evidence of significant risk (plan, intent, means), crisis intervention was immediately contacted and the participant was referred to the nearest emergency department for a psychiatric evaluation. If the participant refused treatment and was an immediate risk to herself or others, the police would be contacted and if necessary, a petition for an involuntary evaluation would be completed by the responsible investigator. Any participant experiencing thoughts of hurting herself or others, regardless of level of risk, would be asked to provide a release of information so that her primary care physician or psychologist can be informed of her mental status. The participant would also be asked to seek psychological treatment and discuss her feelings/thoughts with her primary care physician. In the course of this study, none of the participants posed a suicide risk, so the above procedures were not implemented.
After data were collected, a SPSS (Statistical Package for the Social Sciences) database was developed and statistically analyzed to determine rates of utilization of treatment, levels of depressive symptoms and perceived social-support. Life events scores were also examined to determine the effect of negative life events on dependent variables. Barriers were also analyzed to determine if problem-solving and the development of solutions for practical barriers to treatment were actually implemented and/or seen as helpful. The problem-solving approach was analyzed to determine if the approach had any effect on implementation of problem solutions and if a correlation existed between the approach and the perceived helpfulness of the intervention.

**Coding, Record Keeping & Confidentiality**

All records and documented information that pertains to this research project were kept in a locked cabinet separate from the subjects’ other medical records. While collecting data, forms were placed in the participants’ personal file and taken to a locked cabinet. The cabinet is located in a professional building with a locked office door and outside business door. Therefore the participants’ files will be triple locked, which exceeds the “double lock” standard held by current HIPPA regulations.

For the purpose of this study, subjects were identified by their names and provided with a code number for statistical analysis. It is necessary to use the participant’s actual name on the screening protocols and patient information sheet so that the patient could be contacted for posttest data collection via telephone. After completion of the posttest data collection, her name was blacked out and the participant was assigned a code number for data analysis.
In some cases, subjects were under the age of eighteen and therefore considered an adolescent, requiring parental consent to participate in the study. Although it is preferable to obtain parental consent when possible, there were cases in which parents were unavailable or unsupportive. According to Pennsylvania law, mandated after the Grossman case, an adolescent can consent for his or her own psychological treatment if he or she 1) is a high school graduate, 2) Married or 3) Has been pregnant. The third option certainly applies to any subject in this study because one inclusion criteria is the delivery of a live infant. Therefore adolescents were given the option to sign their own consents without parental involvement if they met one or more of the criteria described. A brief note regarding the consent law was documented with the consent form in these situations and the subject was informed of her rights to consent or refuse treatment.
Results

The objective of this study is to evaluate the impact of screening measures and of a supportive approach immediately postpartum on utilization of recommended care, levels of depression and perceived social support. Women were recruited on a maternity unit (N=40) and randomly assigned to one of four groups where they 1) received treatment as usual (control), 2) received brief psycho-education and PPD screening, 3) received brief psycho-education and problem solving support and 4) received brief psycho-education, PPD screening and problem-solving support. Each group participated in a post-test at eight weeks involving a PPD screen, social support questionnaire, life events questionnaire and brief interview to assess utilization of care.

It is hypothesized that interventions such as brief psycho-education, postpartum screening and problem solving assistance (Groups 2, 3 and 4) would result in higher levels of treatment compliance, reduce levels of depression at eight weeks and increase perceived social support. It is further hypothesized that the more intensive the intervention, the more significant the changes will be. Thereby, Group 4 which receives standard care, PPD screening and problem-solving assistance, will demonstrate the most positive outcome. At post-test, it is predicted that subjects receiving problem-solving assistance will report lower levels of perceived negative life events, and those reporting higher rates of negative life events will also demonstrate higher rates.

Methods

Hypotheses findings are first analyzed, followed by statistical findings from the intervention (no posttest) such as frequencies, percentages, means and standard deviations of
screening responses, and frequencies and percentages of problem solving responses followed by descriptive statistics of posttest findings.

Analysis of covariance findings are then presented, illustrating the effect of treatment on the dependent variables, while holding the effects of income constant. An evaluation of group means are then compared within an Analysis of Covariance (ANCOVA) framework where Treatment was the fixed effect of interest and Income served as a nominally-scaled covariate. The inflation of the family-wise alpha rate when examining the six pairwise comparisons was mitigated by using Tukey’s Honestly Significant Difference (HSD). All pairwise differences and their associated confidence intervals were plotted. Partial $\eta^2$s and $\omega^2$s were also computed for the Treatment effects.

The relationship between Income (treated as a continuous variable), and study outcome variables was visually inspected using scatterplots. These figures also included the least squares line of best fit for visual reference and treatment groups were represented, using different plot symbols and colors.

**Hypotheses Analysis**

**Hypotheses I-III:** Subjects in Group 4, who receive both the EPDS and problem-solving exercise, will demonstrate higher rates of utilized treatment than women in any other group. Subjects in Groups 3 (problem solving exercise) & 2 (EPDS) will utilize recommended treatment more than women receiving standard care (Group 1).

Of the 40 subjects who participated in the study, 4 (10%) sought and participated in some form of treatment for depression (See Table 14). The 4 women participating in treatment were distributed among groups as follows: Group 1= 1, Group 2= 0, Group 3= 2, and Group 4= 1.
Two-Way Chi Squared test was used to assess whether or not utilization of treatment is dependent on treatment condition (Groups 2, 3, & 4) and Group 1 (Control). Results indicate no significant relationship between treatment condition and utilization of treatment, $X^2 (1) = 0, p > .05$. Therefore, hypotheses I-III were rejected. It is believed that the relatively small sample size impacted these results, and that a larger-scale study with more power may yield different results.

**Hypothesis IV:** Subjects in Groups 2, 3, and 4, who receive screening and/or problem solving, will demonstrate lower levels of depressive symptoms than Group 1, who receive only standard interventions.

An analysis of covariance (ANCOVA) was used to assess whether or not treatment had an effect on postpartum depression scores after controlling for income differences. Results indicate that after controlling for income, there was not a significant difference between treatment and depression screen scores, $F (3, 31) = 0.47, p = 0.7048$. Further, a minimal effect was reflected between treatment and the depression screen ($\eta = .04$) (See Table 13). Income did not have a significant effect on the postpartum depression score among the four groups, $F (5, 31) = 1.08, p = 0.3912$ (See Table 10).

All 40 subjects were administered the PDSS, and five fell into the clinically significant to positive range (See Table 8). Group 1 had one significant screen; Group 2 had two; Group 3 had two, and Group 4 did not have any significant screens. Postpartum Depression Screen Scale group means were compared within an Analysis of Covariance (ANCOVA) framework where *treatment* was the fixed effect of interest and *income* served as a nominally-scaled covariate. Postpartum depression total score means from highest to lowest are as follows: Group 3 (49.8,
Postpartum Depression 74

SD 15.39), Group 2 (48.6, SD 9.87), Group 1 (48.4, SD 9.18) and Group 4 (43.8, SD 8.92).
Therefore, subjects receiving the screen and problem-solving exercise produced the lowest PPDS scores on post-test. The control group produced lower scores than groups receiving either the screen or problem-solving exercise separately (See Table 11). The overall ANCOVA results indicate that the differences were not statistically significant and hypothesis IV is therefore rejected.

Hypothesis V, VI, and VII: Subjects exposed to conditions in Group 4 (EPDS and problem-solving) will report feeling more highly supported according to the Brief Measure of Social Support (BMSS) than Groups 1, 2, or 3. In addition, subjects in Groups 2 (EPDS) and 3 (Problem Solving) will report feeling more highly supported than Group 1, receiving only standard care.

The Brief Measure of Social Support (BMSS) was administered to all subjects (N=40) at post-test. An analysis of covariance (ANCOVA) was used to assess whether or not treatment had an effect on the brief measure of social support scores after controlling for income differences. Results indicate that after controlling for income, there was not a significant difference between treatment and social support scores, F (3, 31) = 2.41, p = 0.0860 (See Table 11). A mild effect was reflected between treatment and perceived level of support (Eta = .19) (See Table 13)

Group means were compared within an Analysis of Covariance (ANCOVA) framework where treatment was the fixed effect of interest and income served as a nominally-scaled covariate (See Figure 3). Means ranged in order of highest perceived support to lowest
perceived support. Group 4 (5.75, SD .71), who received the screen and problem-solving exercise felt most highly supported, then Group 2 (5.70, SD .48) who received the problem-solving exercise, followed by Group 3 (5.67, SD .65), who received the problem-solving exercise, and the control group (5.10, SD 1.29).

Therefore, Group 4, who received the screen and problem-solving exercise did report feeling more highly supported than Groups 1, 2, or 3, although, not to a statistically significant level. Groups 2 (screen) and 3 (problem-solving exercise) also reported feeling more highly supported than Group 1 (control), although also not to a statistically significant level. As a result, Hypotheses V, VI and VII are rejected.

Hypotheses VIII: At post-test, subjects with higher rates of negative life events according to the Recent Life Events Questionnaire (RLEQ) will also demonstrate higher rates of depressive symptoms on post-test screening, using the Postpartum Depression Screening Scale (PDSS).

The Recent Life Events Questionnaire was administered to all subjects (N=40) at posttest. The mean number of recent life events (including childbirth) was 2.0 (SD 1.26). Responses ranged from 1 (childbirth) to 6 negative recent life events. There were 19 subjects reporting one recent life event (childbirth), accounting for 47.5% of the responses. The subjects reporting one event had a mean PPDS score of 44.5 (SD 6.3). Eleven subjects reported two events, accounting for 27.5% of the responses with a mean PPDS score of 47.9 (SD 11.7). Four subjects reported three events (10% of responses) with a mean PPDS score of 58.0 (SD 15.9). Three subjects reported four events (7.5% of responses) with a mean PPDS score of 49.3 (SD
Two subjects reported five events (5% of responses) with a mean PPDS score of 67.0 (SD 12.0). One subject reported six events (2.5% of responses) with a mean PDSS score of 45.0 (SD 0) (See Table 15).

The number of recent life events were compared with total PPDS scores, using a Pearson correlation coefficient \( r = .37 \) (See Figure 7). Typically, a correlation coefficient of .50 is considered respectable (Heiman, 1998); therefore, the strength of the relationship between number of life events and PPDS scores is considered relatively weak and Hypothesis VIII is rejected.

**Hypothesis IX:** Subjects in Groups 3 and 4, who receive problem solving assistance, will report lower levels of perceived negative life events via the RLEQ at post-test than groups 1 or 2.

The Recent Life Events Questionnaire was administered to all subjects (N=40) at posttest. The mean number of recent life events (including childbirth) was 2.0 (SD 1.26). An analysis of covariance (ANCOVA) was used to assess whether or not treatment had an effect on the Recent Life Event Questionnaire scores after controlling for income differences (See Table 12). Results indicate that after controlling for income, there was not a significant difference between treatment and recent life event scores, \( F (3, 31) = 0.75, p = 0.5334 \). A minimal effect was reflected between treatment and recent life events (\( \text{Eta} = .07 \)) (See Table 13). Income demonstrated a significant, negative effect on recent life events among the four groups, \( F (5, 31) = 2.77, p = 0.0352 \), which is reflected as a negative relationship on the scatterplot provided on Figure 6. This result suggests that women with higher income levels tend to experience lower
levels of negative life events. This finding is consistent with responses on the RLEQ, where women reported financial difficulties more frequently than any other negative life event.

The Recent Life Events Questionnaire (RELQ) group means were compared within an Analysis of Covariance (ANCOVA) framework where treatment was the fixed effect of interest and income served as a nominally-scaled covariate (See Figure 5). Means ranged in order of highest number of recent life events to lowest number of recent life events. Recent life event means ranged from Group 1 (2.30, SD .82) receiving the control group had the highest number of life events, followed by Group 2 (2.20, SD 1.40) who received the depression screen, and Group 3 (2.00, SD 1.76) who received the problem solving exercise. Group 4, who received both the screen and problem-solving exercise, had the lowest number of recent life events (1.50, SD 1.07).

Groups 3 and 4 demonstrated lower levels of negative recent life events, compared with Groups 1 and 2 that did not receive from the problem-solving exercise. Although these finding appear to support Hypothesis IX, the overall ANCOVA results indicate that the differences were not statistically significant and hypothesis IX is therefore rejected.

**Secondary Hypotheses A: Is there a relationship between life events and utilization of services? It is hypothesized that higher rates of negative life events will correlate with lower rates of treatment utilization.**

Subjects utilizing treatment provided a mean RLEQ score of 1.25 (SD .43), compared with the overall sample RLEQ mean of 2.00 (SD 1.26) (See Table 14). The difference between means was -.086, which is a relatively small difference. The relationship between the
number of recent life events and utilization of services were evaluated via point-biserial 
correlational analysis, producing a weak correlation coefficient of \((r = .01)\). Therefore, 
secondary hypothesis A is rejected.

**Secondary Hypothesis B:** Is there a relationship between negative beliefs regarding PPD 
and utilization of care, perceived social support and depressive symptoms? It is 
hypothesized that higher rates of negative beliefs regarding PPD will correlate with lower 
rates of utilization of care, less perceived social support and higher rates of depressive 
symptoms.

Exploration of the effect of beliefs on utilization of treatment, perceived support and 
depressive symptoms was not possible due to insufficient sample size, especially within the 
subjects who utilized care. In addition, beliefs concerning the causes of PPD were not 
quantitatively described for statistical analysis. From a descriptive qualitative perspective, it was 
noted that all (4/4, 100%) of the subjects utilizing treatment identified genetic or hormonal 
causes of PPD, but none of the non-utilizers (0/36, 0%) identified genetic or hormonal causes of 
PPD. This suggests that women who have a better understanding of the hormonal and genetic 
basis of PPD may be more likely to utilize treatment.

Responses for other belief-based questions were relatively equal between utilizers and 
non-utilizers. The scale was based on the possibility of four responses: none, some, much, or 
very much. On average, treatment effectiveness was described by both groups as “Much”; fear 
related to expressing depressive symptoms was described as “None”, and whether or not 
anything would prevent seeking treatment was reported as “None”. These finding do not suggest 
that beliefs based on treatment, fears related to expressing symptoms of PPD, and/or beliefs
regarding the likelihood of seeking treatment possibly impacted rates of utilization of treatment, perceived support or depressive symptoms in this study.

**Descriptive Results of Intervention Phase**

**EPDS Intervention Phase Descriptive Findings**

A total of 48 subjects (N=48) completed the initial intervention among the four groups, leaving (n=12) subjects per group. Attrition accounted for 8 subjects, leaving (N=40). Groups 1 & 2 each had 10 subjects; Group 3 accounted for 12 subjects, and 8 subjects were left in Group 4. Groups 2 and 4 were asked to complete the EPDS, for a total of 18 completed screens. Because 24 EPDS screens were completed in the intervention phase of the study before eight subjects were removed, frequencies were calculated using both (n=24) and (n=18) to provide comparative analysis.

The Edinburgh Postnatal Depression Scale (EPDS) comprises ten brief questions that are collected via self-report. Of the 18 completed screens, two fell into the “clinically significant” range (equal to or greater than 9). The established protocol for this study required that a psychological consult be offered within 24 hours, if the subject wished to receive such treatment. Both women who received clinically significant results were offered this consult in addition to three free sessions and both declined services. One stated that she was already in therapy and wished to continue receiving treatment with that therapist. The other woman stated that she was just too overwhelmed to cope with the logistical problems required to obtain treatment (transportation, childcare, emotional and physical energy), even when solutions to those barriers were discussed.
The first subject who obtained a positive screen (EPDS=9) was a 35-year-old, married woman with two children. She gave birth via c-section with no other complications. She had a bachelor’s degree in communications and identified her family as being in the highest income bracket. At posttest, she obtained a PDSS score of 66, which is in the “significant symptom” category with elevations in emotional lability and anxiety. She identified her support system as “ok”, rating it as “a little dissatisfied” with regard to dependability of support. Financial difficulties were identified on the recent life events questionnaire. When asked if the anything else could have been done to improve her treatment, she stated, “I wanted my family and staff to leave the room so I could have alone time with my new baby.” Despite stating that she would continue with psychological treatment postpartum, at post-test she stated that she was just too busy. She was tearful throughout the post-test call, required supportive listening and was referred to resume outpatient treatment as soon as possible. She was also encouraged to discuss the possibility of pharmacological intervention with her physician. She was agreeable to the recommendations and able, verbally, to commit to safety.

The second subject with a positive screen (EPDS=18) who declined services was a 22-year-old, single mother of three. She completed high school and planned to stay home with her children with minimal social support. Her income level was reported as between ten and twenty thousand dollars annually. She reported having postpartum depression with her other two children and had been prescribed antidepressants in the past with some benefit. She denied any history of outpatient or inpatient treatment and openly expressed her rejection of future treatment because of a belief system that supported a “Do it yourself” approach. Her current pregnancy was unplanned and she reported feeling extremely overwhelmed but denied any past or current
thoughts of harming herself or her children. Attempts to obtain posttest data were unsuccessful because of a change in phone number.

The frequencies of responses to each question of the EPDS were analyzed to evaluate for trends in symptom presentation using sample sizes, reflecting total sample size (n=24) and sample size after attrition (n=18). The findings (See Table 1) indicate that the most frequently endorsed item on the EPDS was item number three, “I have blamed myself unnecessarily when things went wrong”. Between 77.8 and 90% of women completing the screen endorsed item number three to some degree, depending on the sample size reflected. Item number three accounted for 21.4 to 22.6% of the total scores. The second most frequently reported symptom was item number 4, “I have been anxious or worried for no good reason.” 72 to 85% of the women endorsed this item, attributing to 20.2 to 21% of the total items endorsed.

The severity levels of the symptoms were also analyzed and found to be similar to the frequency findings (See Table 2). Item number three (blame) received a severity score of 16 (n=18) and 22 (n=24) for the two samples examined. Item number four (anxiety) received a severity score of 15 and 22 respectively, which is nearly identical to item number three’s results. Therefore, women tend to report symptoms related to blame more often than symptoms of anxiety, although the overall severity levels of the two factors are generally equivalent.

The remaining frequency and percentages of individual items are as follows, from highest to lowest frequency for both (n=18) and (n=24):
Item 6: “Things have been getting on top of me”  
(Score=9/12 and 14.3/14.5% of total)

Item 5: “I have felt scared or panicky for no very good reason”  
(Score=8/12, and 12.9/14.3% of total)

Item 9: “I have been so unhappy that I have been crying”  
(Score=6/9, and 9.6/1.7% of total) and  
Item 8: “I have felt sad or miserable”  
(Score=7/8, 11.3/9.5% of total)

Item 7: “I have been so unhappy that I have had difficulty sleeping”  
(Score=4/5, 6.5/6.0% of total)

Item 1: “I have been unable to laugh and see the funny side of things”  
(Score=1/2, 1.6/2.4% of total)

Item 2: “I have looked forward with enjoyment to things”  
(Score=0/1, 0/1.2% of total)

Item 10: None of the women endorsed item ten  
“The thought of harming myself has occurred to me”.

Means of the total EPDS screening results were calculated among the four groups, where Groups 2 and 4 included EPDS screen (See Table 4). The findings reveal a mean score of 5.50 (SD 2.37) for Group 2 and a mean EPDS score of 1.75 (SD 1.39) for Group 4. There was one clinically significant screen for depression in Group 2 and 4 respectively, although the subject in Group 4 fell into the attrition group and was not officially calculated. There was a difference in EPDS scores between Group 2 and 4 of 3.75.

**Problem-Solving Descriptive Findings**

A total of 48 subjects completed the initial intervention, eight of whom fell into the attrition group, leaving (N=40). Groups 3 and 4 were asked to complete the problem-solving
worksheet in collaboration with the examiner, for a total of 24 completed problem-solving worksheets. Because all 24 problem-solving forms were completed in the intervention phase of the study, the frequencies were calculated using both the pre-posttest (n=24) and posttest (n=20) subject numbers that account for attrition.

Of the 24 women who completed the problem-solving exercise, 11 stated that there were no barriers to receiving treatment in the future if it were required (45.8%) (See Table 3). Barriers based on beliefs such as, “Counseling doesn’t help” (12.5%), “I can do it myself; it’s private” (12.5%), fear of not recognizing symptoms (6.3%) and fears related to the stigma (18.8%) associated with postpartum depression were more significant than anticipated, accounting for 50% of the total barriers reported. Logistical barriers such as transportation (6.3%), social support (12.5%), finances/insurance (18.8%), time (6.3%) and childcare (6.3%) also accounted for 50% of the total barriers reported.

Difficulties with finances/insurance and coping with beliefs surrounding social stigmas associated with postpartum depression were most frequently reported. Transportation difficulties and beliefs supporting the notion that depression is a private matter and treatment is ineffective were the next most frequently reported barriers. Poor social support, childcare problems, no time and concern about not recognizing symptoms were each reported on one occasion.

The mean number of women reporting barriers for the intervention phase was calculated where (n=24) (See Table 5). In Group 3, 7 of 12 women (58%) reported barriers. This provided a mean of 1.42 (SD .49), where (1=yes) and (2=no). In Group 4, 6 out of 12 women reported barriers (50%), with a mean of 1.50 (SD .50) on the same scale. The number of women reporting barriers between Group 3 and Group 4 was very similar.
On post-test, 12 of 12 subjects in Group 3 found the problem-solving exercise helpful and 6 of 8 found it helpful in Group 4. Therefore, 100% of the subjects in Group 3 found it helpful, and 75% of Group 4 found it helpful. On average, 90% of the subjects in the study found the problem-solving exercise helpful (See Table 5).

Descriptive Findings of Post-test Phase

A total of 40 subjects completed the post-test phase of the study (N=40), with 10 subjects in Groups 1; 10 subjects in Group 2; 12 subjects in Group 3, and 8 subjects in Group 4. The mean age of women participating in the study was 26.2 (SD 6.01), and the mean number of children (including the current child) was 2.1 (SD 1.36) (See Table 6). 70% of the women delivered her child naturally, and 30% delivered via c-section. 58% of the women were married, 32% single and 10% cohabitating. The average education level was between high school and partial college. The average income level was between $40,000 and $50,000 annually. Results of means were similar among groups, indicating mild variance.

Descriptive Findings of Treatment Utilization

Of the 40 subjects who participated in the study, 4 (10%) sought and participated in some form of treatment for depression (See Table 14). The 4 women participating in treatment were distributed among groups as follows: Group 1= 1, Group 2= 0, Group 3= 2, and Group 4= 1. The mean age of those who participated in treatment was 24.8 (SD 7.5), with 2.25 (SD 1.09) children and an education level of 2.25 (SD 1.09) (high school/some college). The mean income level was 6.5 (SD .50) ($50,000-$60,000 annually). Half were married, a quarter single, and a
quarter were cohabitating. Compared with the overall mean age of the sample (26.2, SD 6.01), subjects who participated in treatment were 1.4 years younger than the overall sample. The income level of those participating in treatment was one full range above the overall mean income level of the sample.

The mean Postpartum Depression Screening score for the women participating in treatment was (51.3, SD 4.9), compared with (47.7, SD 10.84) for the overall sample, resulting in a difference of 3.6. The cutoff for a significant score on the PDSS was 59. One of the four subjects participating in treatment obtained a positive short score, which was then negated by the total PDSS score. The mean perceived level of support for women receiving treatment was (5.25, SD .83), which is translated into “fairly satisfied”. This was slightly lower than the average perceived level of support of the overall sample (5.56, SD .78), which remained “a little satisfied”. The number of recent life events for women participating in treatment (1.25, SD .43) were also mildly less than the overall sample (2.0, SD 1.26). The number of recent life events included “childbirth” for all participants, so the least possible number of life events was one (See Table 14).

The four women who sought and participated in treatment decided to do so for varying reasons. One reported the development of relational issues with the father of her child; therefore, they decided to participate in psychotherapy, which she described as helpful. The second subject was a 15-year-old, first time mother, who found the role of motherhood overwhelming and decided to receive support through her guidance counselor at school. The other two subjects had a history of depression with psychopharmacological treatment. Both decided to resume their antidepressant treatment after giving birth, and both reported a decrease in depressive symptoms.
Postpartum Depression Screening Scale – Descriptive Findings

All 40 subjects were administered the PDSS, and five fell into the clinically significant to positive range (See Table 8). Group 1 had one significant screen; Group 2 had two; Group 3 had two, and Group 4 did not have any significant screens. Overall, 12.5% of the women participating in the study provided a clinically significant screen. Three of these screens fell into the “clinically significant symptoms” range, and two screens indicated a positive screen for postpartum depression. The most common overall PDSS subscale (symptom) reported was anxiety, which was also reported by two of the five significant screens. The remainders of the symptoms in order of severity were sleep difficulties, emotional lability, guilt/shame, mental confusion, loss of self and suicidal thoughts (See Table 7). Of the women who reported suicidal ideation, none reported a plan, intent, means or any form of aggressive behavior. All were also able to contract, verbally, to safety and accepted a referral for outpatient therapy.

The first significant screen was a 26-year-old, single woman with two children ages 1 and her newborn (born via c-section). She completed one year of college and was employed in a semi-professional setting. Her income level fell between $20,000 and $30,000 annually. She was part of Group 3, which received the problem-solving exercise during the intervention. The intervention was viewed as helpful in overcoming beliefs about declining help and practical difficulties with transportation. She scored 84 on the PDSS, which is considered a positive screen with elevations in anxiety, emotional lability, and mental confusion. She reported feeling very much overwhelmed with caring for two infants, although her symptoms were improved during the post-test due to implementation of a structured routine. Recent life events included the incarceration of the baby’s father and interaction with the legal system. She reported being
very much satisfied with her social support system, although she had no family and relied on friends. Her physician and pediatrician did not provide screens or discuss PPD symptoms. Referrals for outpatient treatment, a mother’s group and structured play-time at a facility called Gymboree were provided and accepted whole-heartedly.

The second significant screen was a 35-year-old, married woman with two children. Her baby was born via c-section. She had a college degree and worked for a small business, which provided an income level of greater than $60,000 annually. She obtained a PPDS score of 66, which fell into the significant symptom range, with elevations in emotional lability and anxiety. She was a participant of Group 2, which received the EPDS. During the intervention phase of the study, she obtained a positive screen on the EPDS (9) with elevations in anxiety and fear. Recent life events included financial difficulties surrounding daycare costs and she felt that her social support system was not always reliable. She was tearful throughout the phone post-test, required supportive listening and stated that she wished she was able to have more alone time with her infant while in the maternity unit. Screens were given at her six-week visit by her pediatrician, although the results were never discussed. She did not seek treatment on her own because she was too “busy”. She was referred to outpatient treatment and was encouraged to discuss the option of medication with her physician because she had been on an antidepressant in the past that was helpful. She accepted the referrals and stated that she was grateful for the contact.

The third significant screen was a 24-year-old, married woman with four children. Her baby was born naturally and she planned to resume being a full-time homemaker. The family income fell into the $20,000 to $30,000 range but her husband had been recently laid off from
his job. She obtained a PDSS score of 79, which is considered a positive screen for PPD symptoms, with elevations in sleep difficulties, guilt, and suicidal ideation. She was part of Group 3, receiving the problem-solving exercise, which she felt was helpful. Recent stressors included her husband’s job loss and financial difficulties. She was fairly satisfied with her social support system. She was provided with supportive listening and a referral to outpatient counseling, a mother’s group, and was encouraged to arrange time for her own needs and self-care.

The fourth significant screen was an 18-year-old, single, first-time mother. She was a freshman in college, where she was a part-time student. Her baby was born naturally and she was part of Group 1, which was the control group. She benefited from strong family support and her income level fell into the >$60,000 a year range. She obtained a PDSS score of 66, which was in the significant symptom range with elevations in loss of self and suicidal ideation. Recent stressors included the death of an aunt. She was fairly satisfied with her social support system. Her OB/GYN did not provided a screen or discuss PPD symptoms, but her pediatrician screened and did not discuss the results with her. She did not seek treatment on her own, but was open to the idea of therapy and accepted a referral. She had private insurance and agreed to call to inquire into her benefits and to make an appointment.

The last significant screen was a 33-year-old, married, first-time mother who gave birth naturally. She had a graduate degree in speech pathology and planned to return to work after maternity leave. The total household income was in the greater than $60,000 range. She was part of Group 2, which received the EPDS screen. She obtained an EPDS score of 5, which was not a positive screen. There was a positive history of anxiety. She obtained a PDSS score of 62,
which was in the significant symptom range with no elevations in specific subscales. Symptoms were reported as being higher in the first four weeks, but had substantially reduced since. She attributed this change to improved sleep because her baby was sleeping more hours. Recent stressors included her husband being laid off from his job. She was very satisfied with her social support system and displayed good insight during the post-test call. She accepted a referral to outpatient counseling for additional support and for addressing residual symptoms.

**Social Support – Descriptive Findings**

The Brief Measure of Social Support (BMSS) was administered to all subjects \((N=40)\) at posttest. The mean perceived level of support score among the total sample was 5.56 (SD .78), which is represented as the “fairly satisfied” range. Although an analysis of covariance (ANCOVA) indicate that after controlling for income, there was not a significant difference between treatment and social support scores \((F (3, 31) = 2.41, p = 0.0860)\), income demonstrated a significant effect on perceived level of support among the four groups, \(F (5, 31) = 7.10, p = 0.0002\) (See Table 11). This effect is reflected as a positive relationship on the scatterplot provided on Figure 4. This result suggests that women with higher income levels tend to view their social support as more beneficial than women of lower income levels. Theoretically, women with higher incomes may live in homes with more family members providing financial support. Also, single women may have the means to obtain support such as daycare and babysitting that a woman of lower income could not afford.
Discussion

This study was designed to study the impact of screening measures for PPD and a supportive approach immediately postpartum on utilization of recommended care, levels of depression and perceived support. ANCOVA analysis assessing whether or not treatment had an effect on depressive symptoms, on perceived social support, on recent life events and utilization of treatment demonstrated minimal effect after controlling for income as a covariate. Given that this study’s sample size (N=40) was not powerful enough to produce a significant effect, these findings are somewhat expected. A comparison of means was provided for informal evaluation, although these results are inconsistent and are considered insignificant because the overall effect is not significant. Although the main interactions of the study demonstrated minimal effect, this study has value as a model for a refined feasibility study and possibly for a larger scale study in the future. Further suggestions regarding future research will be provided in the limitations and suggestions section of this document.

Interestingly, income was a significant factor in recent life events and perceived level of support. These findings suggest that women with higher incomes tend to view their support as more adequate and tend to experience fewer negative life events. A closer look at specific responses on the recent life event questionnaire revealed that financial difficulties was the most frequently reported life event other than childbirth. Socioeconomic status has been found to be a risk-factor in PPD, as demonstrated in a study finding the prevalence of PPD in women of inner-city women of low income at 23.4% (Hobfoll, 1995), compared with the overall prevalence rate of 13% (O’Hara, 1996).
This study also evaluated the impact of interventions on utilization of treatment and proposed that subjects receiving interventions would have higher rates of treatment utilization than the control group receiving standard care. Results did not support this hypothesis, suggesting a minimal relationship between interventions and utilization of treatment. There were no significant differences noted between the women who participated in treatment and those who did not, other than the fact that 50% of the women who participated in treatment had received psychological treatment for depression (medication) in the past. Given that there were only four women (10%) who participated in treatment and that the sample size was small, with limited power, it is proposed that this result may be misleading.

Of the four women who participated in treatment, two (50%) had a history of previous depression, with prescribed antidepressants. The strongest predictor of PPD is past history of psychopathology (O’Hara, 1996), according to a meta-analysis of rates and risk of PPD from 59 studies. These findings suggest that professionals working with women during the prenatal and postnatal period would be advised to pay close attention to women of low socioeconomic status who are more vulnerable to developing PPD and face significantly more obstacles to obtaining treatment. If routine screening is not protocol, clinicians may wish to implement routine screening for women facing these challenges and engage them in a discussion about symptoms and difficulties they may be experiencing. If home-visits are available, these may serve to buffer the effects of low income, depression, transportation, and childcare barriers.
Clinically Relevant Observations

One observation made regarding screening was a bit unexpected. Of the twenty-four screens provided, two fell into the clinically significant range. Both women were offered a consult and three free counseling sessions with a therapist after discharge, and both declined services. One mother was already in treatment, but the other (who rated severe) stated that in addition to believing that she “should be able to handle her emotions on her own”, was overwhelmed and lacked the energy to arrange the childcare and transportation needed to attend treatment. This observation was also reported in a case study of a young mother of low socio-economic status participating in a home-visit study (Ammerman, 2007). In that case, the home visitor, who primarily provided support to promote child development, referred the young woman to a support group. The woman was reportedly, “too overwhelmed” to attend.

These cases provide some insight into the perspectives of women struggling with postpartum symptoms, who quite often fall into a lower socioeconomic bracket in which childcare and transportation is a hurdle. It is understandable how women in this situation who experience severe depressive symptoms are too overwhelmed after giving birth to make an effort to arrange treatment. These cases raise several questions including: 1) How can treatment be more accessible for women of low socioeconomic status? 2) Is immediately postpartum the best time for education? 3) If these women had received prenatal education about postpartum depression, would they be more receptive to treatment?

Home-based therapy and postnatal support, similar to what is provided in many parts of Europe, may be one solution to reaching women who are too overwhelmed to make arrangements for treatment. Wickberg & Hwang (1996) conducted a randomized trial of non-
directive counseling in Sweden, where 41 women with depression were assigned either to a treatment group or to a control group. The treatment group received six weekly visits and the control group received standard care. Twelve of the fifteen women (80%) with PPD were fully recovered after the intervention, compared with four of the sixteen (25%) participating in the control group. In 2001, the Swedish National Counsel for Medical Research recommended routine screening and intervention throughout Sweden.

In a single case study, Ammerman & colleagues (2007) attempted a similar program in Ohio, providing fifteen in-home cognitive-behavioral therapy (IH-CBT) sessions, followed by one booster session one month later. Treatment was provided in conjunction with traditional home-visitation by a paraprofessional whose focus is on psycho-educational training and case management to promote child development. It was a case study, and the treated mother demonstrated significant improvement in mood, self-sufficiency, and attachment to her baby.

Previously, Ammerman & colleagues had conducted another study in 2005, using IH-CBT with 26 first time mothers in home-visitation. Women were offered treatment if they met criteria for PPD, based on a diagnostic interview. Results indicated that 25 of the 26 women reported a drop in the Beck Depression Inventory-II (BDI-II), with a mean drop of 16.5 points. At post-treatment, 84.6% of participants no longer met criteria for PPD (Ammerman, 2005). A systematic review of home-based studies found that four of the six programs significantly reduced depression (Leis, 2009). The studies were randomized, controlled, and published in peer-reviewed journals. These cases demonstrate the effectiveness of home-based counseling in reducing depressive symptoms in women that might otherwise be too overwhelmed to arrange treatment outside of home.
There is another possible means of identifying and treating at-risk women in the early postpartum period that are unable to arrange their own treatment; this is the use of the internet for screening. A study examining the feasibility of using the internet to screen for PPD found that participants were more likely to be recruited through the internet than through mail or personal contact (Huynh, 2008). A higher proportion of minority women participated on the internet compared with the in-person study, and the internet sample also reported more risk for PPD compared with the community sample (23% versus 12%). These findings suggest that the internet is a viable and feasible tool to screen for PPD and may encourage women to be more forthright in their responses, especially women that come from minority backgrounds.

New mothers who are overwhelmed and struggling with symptoms of depression may not be able to concentrate adequately or demonstrate the motivation necessary to participate in psycho-education about PPD. On the problem-solving exercise, logistical barriers were thought to be the major barriers to treatment, but belief-based barriers were almost equally influential. Brief attempts to provide education to counter the faulty beliefs about PPD, early postpartum, when depressive symptoms have already manifested, will likely have minimal impact. The solution may lie in targeting education during prenatal care when women are more receptive to novel ideas.

The efficacy of prenatal psychological intervention was evaluated in a randomized, controlled study of 800 pregnant women at 16-20 weeks gestation (Tang, 2009). The women were randomly assigned either to the control group, or to the treatment group that received six sessions of psycho-education and brief counseling. Both groups attended and equally participated in the standard hospital education. Results indicated that the rate of anxiety in the
intervention group was significantly lower than that in the control group (3.2% versus 7.8%, p=0.045). No differences in rates of depression were noted between the two groups, although the interplay of depression and anxiety leaves the results open to debate.

There is considerable overlap between anxiety and major depressive disorder, to the degree that it has been proposed that anxiety and depression are variants of a single mood disorder (Brady, 1992). Given that the most frequently endorsed items on the Edinburgh Postnatal Depression Scale were blaming (“I blame myself unnecessarily when things go wrong”) and anxiety (“I have been anxious or worried for no good reason”), a reduction of “anxiety” symptoms may serve to reduce depression. This study demonstrates how prenatal education may be more effective in reducing symptoms than during the postnatal period when new mothers are overwhelmed.

Given that marital instability and poor social support are risk factors for PPD (O’Hara, 1996), involvement of the father in prenatal education may also serve to increase the likelihood of a general understanding of the causes of PPD within the family. If fathers were educated about PPD, they would be better prepared to cope with the mother’s depressive symptoms and provide the needed support. There is some empirical evidence to support the existence of postpartum depression in fathers. A meta-analysis of 43 recent studies examining paternal depression in 28,004 subjects found a prevalence rate of 10.4% with relatively higher rates during the 3-6 month postpartum period (Paulson, 2010). In addition, there was a moderate correlation between paternal and maternal postpartum depression. These results support the use of prenatal education for both the mother and father in an attempt to reduce misunderstandings
about PPD that lead to beliefs countering treatment utilization, and to impact parental relationships positively by increasing understanding and support.

Another observation during the initial stages of the study involved the information given to new mothers about postpartum depression. Although prenatal education would be ideal, there is also concern about the quality and quantity of psycho-education provided to new mothers on the maternity unit. Currently, the state requires that information about postpartum depression be provided to new mothers, but it does not indicate what exactly is provided. In the case of the supporting hospital, new mothers were provided with a five-page copy of clinical information about PPD that required a graduate level of education to understand. In addition, the sheer quantity of information provided was not reasonable for a new mother to take the time to read, given her other demands.

The nurse manager on the unit openly expressed her concerns with the quality and quantity of the existing information and requested that the investigator collaborate with the unit to develop a replacement. As requested, a brochure was developed to replace the existing handout. In the future, it would be helpful if the state provided specific guidelines for the information provided to postpartum women. It would be even more helpful if the federal government developed a brochure which can be distributed to all hospitals within the United States of America so that every woman is able to benefit from quality, concise and standardized information.
Limitations

Prior to the collection of data, the process of arranging the study proved to be a challenge. These difficulties posed as a limitation within the study, and highlighted the rationale behind many hospitals’ reluctance to permit postpartum interventions in a “real world” scenario. In an effort to meet the demands of the hospital that supported the study, an artificial treatment scenario was provided (such as offering three sessions of psychotherapy free of charge) in an effort to be sensitive to liability issues. Therefore, the external validity of this study was sacrificed to a certain extent, which could have given a favorable impression with regard to the likelihood of treatment compliance.

Specifically, it was difficult finding a hospital willing to participate in the study. This was initially unexpected, given the studies proactive focus of improving treatment for postpartum women. After a lengthy discussion with the attending physicians, a few logistical and understandable concerns became apparent. First, physicians were reluctant to allow the implementation of the study because the very nature of identifying women with postpartum depression increases their liability, especially if the patient presents as dangerous in any manner. Second, a woman who is identified as depressed, increases the responsibility of the physician to ensure that adequate treatment is available through a solid referral base. The concern was stated as, “If we identify women as depressed, then we are responsible if they harm themselves or their child…and there is nowhere to send them for treatment in a timely manner…so we are better off leaving the issue alone.”

The physicians went on to explain that malpractice insurance in the specialty of obstetrics is very expensive, and vulnerability for legal action is high. As a result, they are forced to avoid
factors that may increase their liability in order to survive professionally. An agreement was established that numerous safeguards would be put into place via documentation and a solid referral system, which is not normally available to the public. Although the external validity was compromised, the issue suggested a dire need for an adequate referral system of psychologists who specialize in postpartum depression and are able to treat this in a timely manner. Further examination of the referral base issue revealed a deficit in trained psychologists accepting medical assistance in the central Pennsylvania region. A high proportion of women suffering with postpartum depression are in the lower socioeconomic range, and are unable to benefit from the referral list provided by their physician on the maternity unit.

There is evidence to support the general observation by physicians regarding a lack of resources for women suffering with PPD in Pennsylvania. According to a comprehensive Internet listing of providers specializing in PPD in Pennsylvania, a total of two psychologists specializing in PPD and five support groups are available in the entire state which serves approximately 6.25 million (U.S. Census bureau, 2009) women, including 812,500 (13%) women suffering with PPD (Stone, 2010). In York, Pennsylvania, where the study was conducted, there are virtually no psychologists who advertise specialization in PPD, although there are a few who specialize in “women’s issues” in a clinic that accepts medical assistance. A call to their office to schedule an appointment resulted in a wait of one month to see a psychologist and longer for an appointment with a psychiatrist. In contrast, Sweden not only utilizes routine national screening for PPD, but almost all child healthcare centers have a consultant psychologist, who is available for appointments, trains staff and offers regular supervision (Wickberg, 1996).
The therapy sessions offered in this study involved a consult with a male counselor. The sessions were offered within twenty-four hours if screening results fell into the clinically significant range of postpartum symptoms. Although the two women who declined services did not openly state if continuity of care was a factor in their refusals of treatment, nursing staff raised the question. The investigator initiating rapport was not offered as the treating psychologist, which defeats the intent of providing a safe environment that increases the likelihood of accepting treatment. A study examined the outcome patterns associated with intake therapist discontinuity at a university counseling center of 15,137 clients by comparing clients who continued therapy with their intake counselors with clients who saw a therapist different from their intake counselor. Discontinuity clients were twice as likely as continuity clients to terminate by missing the appointment after intake. Improvement among discontinuity clients lagged behind improvement among continuity clients at sessions two and three (Nielsen, 2009). These findings suggest that intake discontinuity appears to disrupt the beginning of psychotherapy by increasing the likelihood of not following through with treatment and by slowing the improvement among those who did return.

The other expressed concern was the likelihood of a woman suffering with postpartum depression to accept a consult from a male therapist. Nursing staff seemed to believe that postpartum women would relate better and feel more comfortable with a female psychologist who has children of her own and can understand the labor and delivery process. A study conducted by Caron Zlotnick (1998) at Brown University examined whether or not the gender of a therapist affects the treatment of patients with major depression. Although both men and women patients have been found to prefer counselors of the same gender (Simons & Helms,
1976), this study found that gender differences were not significantly related to levels of depression at termination, to attrition rates, or to patient’s perceptions of the therapist’s degree of empathy (Zlotnick, 1998). It may be argued that postpartum depression differs from “traditional” depression because it is much more intimate and that motherhood is a female experience. The purpose of this study was to examine factors that may increase the likelihood of treatment utilization, so the issue of gender preference is paramount in initiating treatment. Whether or not the treatment is successful once initiated is irrelevant if the new mother never makes an appointment. Therefore it is reasonable to state that gender differences could theoretically affect whether or not new mothers initiate treatment for PPD.

There are some inherent limitations within the study that are directly influenced by the nature of research. When an investigator approaches a new mother to participate in research, there is an overall impression of asking for something in a situation when energy is already depleted. Although this factor did not cause women to decline participation (only one woman declined), it is possible that it took away from the intended feel of providing services and support, rather than asking for help. There is a question regarding the ability of this study to adequately translate the feel of a supportive environment in a research setting. As a result, the internal validity, or the ability of this study to truly impact the level of perceived support may have been compromised. Future research could counteract this limitation by using an archival database created within a hospital, utilizing routine screening and use of psychological consults in a non-research setting.

Another limitation of the study was the impact on the presence of family during the experimental condition. Early on, it became apparent that the initial goal of interviewing women
alone was unrealistic. Part of the reason is that the length of stay on maternity units is so short, and the birth of a child is often a joyous occasion in which family and friends participate. In a research setting, the investigator is not only requesting that the mother exert energy to further research, but he or she is also asking for the family to leave when there is limited time during a special occasion. In this study, it was felt that asking the family to leave was too much to request and would likely result in refusal to participate.

Therefore, the content and validity of new mothers’ responses could impact the presence of family members who instill their own beliefs about postpartum depression. In an effort to counter this issue, data were collected at different times to avoid visiting hours, although many of the clinical consults were performed during the morning; this could not be interrupted. In a non-research setting, this concern may be averted because the interaction would be a clinical consult rather than research, which is a lesser priority during the first few days postpartum.

Limitations that directly influenced the results of this study primarily surround the sample size and lack of power. Initially, it was believed that 100 subjects would provide enough power, although it became clear after the beginning of data collection that prevalence of PPD was not adequately taken into consideration. If 100% of the subjects had PPD, the study would have had adequate power; however the prevalence of PPD is approximately 13%; therefore, at least 1300 subjects are required to provide the power necessary for significant findings. The time and financial resources required to conduct such a large-scale study was unrealistic for the scope of this study. As a result, the purpose of this study is to examine the feasibility of a larger scale study for the future, which will be discussed further in the following section.
Suggestions for Future Research

Results indicate that women may be too overwhelmed with the demands of motherhood in the midst of postpartum depression to arrange and participate in treatment. There are a number of options to assist women in this situation; home visits would reduce the strain of trying to obtain transportation and childcare, and prenatal education for the mother and father would increase understanding of postpartum depression before the effects of the disorder have taken place, and frank discussions by prenatal medical providers about feelings, concerns and risk factors associated with PPD would also possibly create a non-judgmental atmosphere that would encourage open conversations during postnatal care.

The results of the frequency of responses indicate that women endorse blaming themselves for not meeting their own expectations about motherhood and experience symptoms of anxiety related to being overwhelmed with the responsibility of a child. It is suggested that in the future, medical and mental health professionals be alert to this dynamic and provide encouragement, validation and normalization of blaming and of anxiety feelings. If psychologists are able to provide services, brief therapy focusing on locus of control and reframing of expectations would be valuable.

Currently, women are examined by their OB/GYN physician during their six-week visit and in some cases, they are screened for postpartum depression. Although this strategy allows screening to be conducted at a time when women have had a chance to adapt to the challenges of motherhood and are less overwhelmed, there are also negative aspects to this approach. The first six weeks postpartum is an intense period of time from an emotional, hormonal, physical and interpersonal standpoint. Women who develop symptoms of postpartum depression typically do
so within the first four weeks when the demands of infant care are the highest. Maternal mood at one week postpartum was found to be the single largest predictor of depressive symptoms at eight weeks postpartum in a longitudinal study of 594 mothers completing the EPDS (Dennis, 2007). Another study of 1154 women completing the EPDS at 2-3 days postpartum, found that the EPDS is the only screening measure to date that has been found to predict scores accurately at 4-6 weeks postpartum (Teissedre, 2004). If screening is delayed until the six-week visit, there is a significant risk of neglecting treatment for up to six weeks. During a six-week period, not only does the new mother potentially suffer, but her symptoms may also progress and become more difficult to manage.

Therefore, routine screening within the first week postpartum and at the six-week visit is suggested to monitor symptom progression. The practicality of these suggestions is another issue, given that services require financial backing. Recent media attention given to cases of infanticide have raised public awareness of PPD, and thereby increased the availability of grants aimed at improving care for women with PPD. Grant funding could be utilized to create a standardized information brochure, support at-home visits, PPD groups, funding for psychological treatment for women with no insurance or medical assistance, prenatal education, and the use of a graduate students under the supervision of a licensed psychologist to routinely screen and treat women with PPD in a sensitive manner that nurtures a supportive environment through continuity of care.

One possible solution to providing early screening within the current health system in the United States is to rely more heavily on pediatricians to provide screening at the well-baby visits. These visits typically take place at one week and one month, when new mothers are not
otherwise seen by their obstetricians. From a clinical perspective, it is logical to focus more on the pediatrician after the baby is born, given the fact that the focus of the obstetrician is less intense after childbirth. This suggestion is economically feasible, although it would require an interdisciplinary team, including a psychologist specializing in postpartum depression to implement this.

Home visitation is also suggested to increase treatment compliance and decrease depression rates. Britain has been taking advantage of home-visits, group therapy and nurses trained in providing support to women with PPD for many years. This system provides free prenatal care, hospitalization, and well-child services including extensive community based postnatal care (Bradley, 2003). Jeni Holden, coauthor of *Perinatal Psychiatry*, reiterates the need for a clearly identified referral system, which may be simpler in a country under government-based insurance. In order for such a system to exist in the United States of America, funding would need to come from grants and/or insurance companies would need to increase their payment for services. In the United States, healthcare reform is a top political concern and the outcome of the structural and financial changes will undoubtedly have an impact on the treatment of PPD. Ideally, these changes will include funding to provide a solid referral base, which can lead to the promotion of closer interdisciplinary links.

The use of psychologists in hospital settings to address issues of emotional difficulties such as depression is becoming more common. They typically work under the umbrella of behavioral medicine and serve as consultants throughout the hospital, addressing psychological conditions associated with a multitude of medical illnesses. Traditionally, there are no
psychologist assigned to one area or medical condition, and routine screening for depression is extremely uncommon.

When an effort was made to find a model similar to the one suggested in the discussion of this study in a medical setting, it proved to be a difficult search. Cardiology seemed to be an obvious place to start, given the high rates of depression after having a myocardial infarction (15-20%) and open heart surgery (21.5%) (Lichtman, 2008 & Hata, 2006). The American Heart Association provides guidelines for professional health providers, suggesting routine screening with follow-up for those scoring in the high range including serotonin reuptake inhibitors, cognitive behavioral therapy, and physical activity.

Despite this suggestion, it appears that many cardiac units continue to use behavioral medicine consults only when the physician may suspect depression, if there is a behavioral medicine department at that hospital. Northwestern Memorial Hospital published a webcast on depression after a cardiac event or cardiac surgery on February 24th of 2009. The guest speaker was Dr. Kim Lebowitz, who was introduced as “director of cardiac behavioral medicine at the Bluhm Cardiovascular Institute…perhaps the only place where there is a psychologist who specializes in helping people as a team with heart patients”. This model integrates psychological care with cardiac care as much as possible by providing routine face-to-face assessments to discuss behavioral risk factors and depression/anxiety symptoms prior to surgery. The patients are also seen in the hospital after surgery and are followed for outpatient care if symptoms persist. In addition, Dr. Lebowitz strongly advocates the use of routine screening for depression in all cardiac patients in all settings (Lebowitz, 2009).
There are some strong parallels between the suggested model in this study for postpartum patients and Dr. Lebowitz’s model for cardiac patients. Both of these conditions experience rates of depression around 20%; both sets of patients experience a life changing medical event, and both conditions are adversely affected by depression. Given the fact that cardiac patients appear to be benefiting from routine screening, pre-surgery education, routine behavioral medicine assessments, and insurance coverage to fund psychotherapy (Lebowitz, 2009), it seems reasonable to believe that the same could hold true for postpartum women if funding were made available. In fact, it is possible that this model could be successful for many medical conditions.

Changes in funding and treatment protocols require legislative support, and legislative support requires sound scientific research to support the proposed treatment. Therefore, it is suggested that a larger scale study further examine the effect of interventions immediately postpartum on utilization of treatment, perceived support, and levels of depressive symptoms. Although the results of this study were not conclusive, it provides a framework from which to work in order to implement a study that will possess the power necessary to addresses the questions proposed in this study. In addition, the results of this study can be used to apply for a grant to fund a larger study in the future.

Specific suggestions for future studies involve a second feasibility study, utilizing information gleaned from this dissertation to refine a larger, grant funded study. The second feasibility study would provide prenatal education to both parents, followed by screening on the maternity unit immediately postpartum and at the 1 week and 1 and 2 month pediatrician visits. High scorers would be referred to home-based interventions, which would include supportive listening and six sessions of brief cognitive behavioral therapy. Posttests would be conducted at
16 weeks, using either the EPDS or the short version of the PDSS and a shorter screen measuring social support. Optimally, a team of graduate students working under a licensed psychologist could work together to obtain the data required, possibly in more than one setting. Arrangements would need to be made for an adequate referral system, involving the student (female) performing the intervention to increase continuity and the likelihood of treatment utilization; all investigators would require privileges to treat at the hospital.

It is believed that the proposed feasibility study would provide a strong base to pursue a larger scale study with a sample size of 1500-2000 subjects to account for prevalence and attrition. The results of a larger-scale study could potentially serve to support legislature leading to positive changes in the treatment of PPD. Some changes occurred during the course of this study’s development, including legislation aimed at mandating routine screening in Maine (LD 792), Illinois (SB0039), and in the senate (S.324). Closer inspection of the proposed bills aims to increase education and screening, although the exact nature of implementing such a program is left to the physicians discretion and is unclear. Future research could also provide specific guidelines for proper screening and assessment that could be utilized in a standardized fashion.
Appendices

Appendix A: Patient Information Sheet

<table>
<thead>
<tr>
<th>Patient Information Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Date:</td>
</tr>
<tr>
<td>Phone:</td>
</tr>
<tr>
<td>Alternate Phone:</td>
</tr>
<tr>
<td>Date of Delivery:</td>
</tr>
<tr>
<td>Number Children:</td>
</tr>
<tr>
<td>DOB/Age:</td>
</tr>
<tr>
<td>Marital Status:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of School Completed</th>
<th>Mother</th>
<th>SO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>High school graduate</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Partial College (at least 1 year)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>College Education</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Mother</th>
<th>SO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm laborer, Day laborer</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Unskilled worker, service worker</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Machine operator, semiskilled worker</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Skilled manual worker, craftsman, police and fire service, military and non-commissioned officers.</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Clerical/Sales, Small farm owner.</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Technicians, Semiprofessional, Supervisor, Office manager.</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Small business owner, Farm owner, Teacher, Low-level manager, Salaried worker.</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Mid-level manager or professional (architect, engineer, accountant, attorney), Mid-sized business owner, Military officer.</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Senior manager or professional (Physician, Professor, Minister), Owner or CEO of large business.</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Family Income Level</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$10,000</td>
<td>1</td>
</tr>
<tr>
<td>$10,000 - $20,000</td>
<td>2</td>
</tr>
<tr>
<td>$20,000 - $30,000</td>
<td>3</td>
</tr>
<tr>
<td>$30,000 - $40,000</td>
<td>4</td>
</tr>
<tr>
<td>$40,000 - $50,000</td>
<td>5</td>
</tr>
<tr>
<td>$50,000 - $60,000</td>
<td>6</td>
</tr>
<tr>
<td>&gt;$60,000</td>
<td>7</td>
</tr>
</tbody>
</table>
Postnatal Plan: FT / PT Maternity Leave At Home
Support/Childcare: Daycare Family-Help Nanny No Support

Beliefs about PPD:
- What do you believe causes PPD?
  - Genetics
  - Lack of support
  - Fatigue
  - Hormones
  - Inadequate mothering skills
  - Isolation
  - Social pressure
  - Other: ____________________________
- How much can treatment from therapy/medications help with PPD?
  - None
  - Some
  - Much
  - Very Much
- If none, why not?
- Are you fearful of what others might think or do if you had PPD? Yes / No
- If yes, why?
- How much would these concerns stop you from getting help for PPD?
  - None
  - Some
  - Much
  - Very Much.

Experimental Condition

<table>
<thead>
<tr>
<th>Consent &amp; Confidentiality</th>
<th>ROI</th>
<th>Condition (1,2,3,4)</th>
<th>Interventions Completed</th>
<th>Scores</th>
<th>Date Complete</th>
</tr>
</thead>
</table>
### Posttest Condition

<table>
<thead>
<tr>
<th>Date</th>
<th>PDSS</th>
<th>RLEQ</th>
<th>BMSS</th>
<th>Utilization &amp; PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Do you remember receiving PPD handouts? Yes / No
   Did you read it? Yes / No
   Did you understand it? Yes / No
2. Advised to seek treatment? Yes / No
   EPDS Score (if given): _______________________
3. Attempt to seek treatment. Yes / No
   If no, why?
4. Participated in treatment. Yes / No
   If yes, helpful? Yes / No
   If yes, Type: Therapy IP Tx
   PCP Social Worker
   Meds Nurse
   Group School
   School Lactation
   Other: __________________
   # Sessions: ______________
   Length Sessions: __________
   If no, why?
5. Was problem solving seen as helpful? (Yes/No)
6. What do you feel would have been helpful?

7. Have you had your 6-week PCP visit? Yes / No
8. If so, were mood related issues discussed? Yes / No
   Were recommendations made? Yes / No
   If yes, what did your doctor recommend?
9. Mood related issues discussed at pediatrician visit? Y/N
   If Yes, what was recommended:
Appendix B: Consent Forms

INFORMED CONSENT FORM

TITLE OF STUDY
Brief hospital based interventions for postpartum depression: Effects on depressive symptoms, perceived support and treatment utilization.

PURPOSE
The purpose of this study is to determine if screening methods for postpartum depression will have an effect on the rates of treatment utilization. This research is also interested in determining if screening interventions influence levels of depression and perceived social support.

You are being asked to be in this research study because you are a new mother at Memorial Hospital; you speak English fluently and are medically stable enough to participate. If you do not speak English, are not medically stable or did not deliver your baby at Memorial Hospital, you cannot be in this study.

INVESTIGATOR(S)

Principal Investigator
Name: Dr. Elizabeth Gosch
Department: Graduate Psychology
Address: Philadelphia College of Osteopathic Medicine
Phone: 215-871-6509

Responsible Investigator
Name: Sabra Abboud, M.S., LPC
Address: Philadelphia College of Osteopathic Medicine
Phone: 717-891-7861

The doctors and scientists at Philadelphia College of Osteopathic Medicine (PCOM) do research on diseases and new treatments. The Edinburgh Postnatal Depression Scale, Postpartum Depression Screening Scale, Recent Life Events Questionnaire, and the Brief Measure of Social Support and a Problem Solving Worksheet are screens and evaluations you are being asked to volunteer for as part of a research project.

Even though this research project is to study the effect of postpartum screening on utilization of treatment, no one can say that this intervention will be better than the usual treatment.

If you have any questions about this research, you can call Dr. Elizabeth Gosch at (215) 871-6509. If you have any questions or problems during the study, you can ask Sabra Abboud, who
will be available during the entire study at 717-891-7861. If you want to know more about Sabra Abboud’s background, or the rights of research subjects, you can call the PCOM Research Compliance Specialist at (215) 871-6782.

**DESCRIPTION OF THE PROCEDURES**
New participants will complete general forms such as a consent, confidentiality and patient information sheet with the responsible investigator. You may be asked to complete a brief screening for postpartum depression consisting of eleven questions. Feedback on the results of this screen will be provided immediately after it is completed. Recommendations may be suggested based on the results of the screen. You may also be asked to participate in a brief discussion regarding possible barriers to seeking treatment for depressive symptoms if it were needed, and methods of overcoming these barriers. The initial visit will vary in duration from 15-45 minutes. You will not be responsible for any preparation for the visit or asked to participate in any physically invasive procedures.

After returning home, you will be contacted at eight and twelve weeks postpartum via phone to complete a brief screen for postpartum depression symptoms, questions regarding utilization of treatment if it were suggested, perceived social support and possible negative life events since giving birth to your child. Each of these phone interviews will take approximately 25 minutes. If additional referrals are requested at that time, they can be provided.

**POTENTIAL BENEFITS**
You may or may not benefit from being in this study. Potential benefits include identification of possible depressive symptoms, referrals to needed treatment, increased problem-solving regarding barriers to treatment and increased perceived social support. Other people in the future may benefit from what the researchers learn from the study. The results of this study could influence prevention and intervention protocols for postpartum depression in new mothers.

**RISKS AND DISCOMFORTS**
Although there are no known risks or discomforts from being in the study, it is possible that the time and energy involved in participating in the study may be perceived as inconvenient.

**ALTERNATIVES**
The other choice is to not be in this study and participate in the usual prevention procedures for postpartum depression mandated by the state. This includes a handout describing the symptoms of postpartum depression and a referral list if treatment was indicated.

**PAYMENT**
You will not receive any payment for being in this study.
CONFIDENTIALITY
All information and records relating to your participation will be kept in a locked file. Only the researchers, members of the Institutional Review Board, and the U.S. Food and Drug Administration will be able to look at these records. If the results of this study are published, no names or other identifying information will be used.

REASONS YOU MAY BE TAKEN OUT OF THE STUDY WITHOUT YOUR CONSENT
If health conditions occur that would make staying in the study possibly dangerous to you, or if other conditions occur that would damage you or your health, the researchers may take you out of this study. In addition, the entire study may be stopped if dangerous risks or side effects occur in other people.

NEW FINDINGS
If any new information develops that may affect your willingness to stay in this study, you will be told about it.

INJURY
If you are injured as a result of this research study, you will be provided with immediate necessary care. However, you will not be reimbursed for care or receive other payment. PCOM will not be responsible for any of your bills, including any routine care under this program or reimbursement for any side effects that may occur as a result of this program.

If you believe that you have suffered injury or illness in the course of this research, you should notify the PCOM Research Compliance Specialist at (215) 871-6782. A review by a committee will be arranged to determine if your injury or illness is a result of your being in this research. You should also contact the PCOM Research Compliance Specialist if you think that you have not been told enough about the risks, benefits, or other options, or that you are being pressured to stay in this study against your wishes.

VOLUNTARY PARTICIPATION
You may refuse to be in this study. You voluntarily consent to be in this study with the understanding of the known possible effects or hazards that might occur while you are in this study. Not all the possible effects of the study are known.

You may leave this study at any time. If at any time you decide to discontinue participation in this study, just inform a staff member or the responsible investigator (Sabra Abboud) and you will be removed from the study immediately. If you drop out of this study, there will be no penalty or loss of benefits to which you are entitled.
I have had adequate time to read this form and I understand its contents. I have been given a copy for my personal records.

I agree to be in this research study.

Signature of Subject: ____________________________________________

Date: _____/_____/______ Time:______________AM/PM

Signature of Witness: ____________________________________________

Date: _____/_____/______ Time:______________AM/PM

Signature of Investigator: _________________________________________

Date: _____/_____/______ Time:______________AM/PM
Appendix C: Release of Information

Release of Information

I, __________________________ authorize Sabra Abboud (responsible investigator) to release information concerning my participation in a research study examining postpartum depression to my gynecologist.

(Name and phone number of OB/GYN)

Specific Information to be released:
- Participation in study, pertinent medical history, results of screening, symptom presentation, medications, concern for safety of participant/others/her child, and recommendations.

Purpose for the release of information:
- Coordinate care with involved providers to ensure the safety of the study participant and her child.

The information may be communicated to the recipient in the following manner:

   x Oral    x Written    x Fax

This consent to release information remains in effect for the duration of your participation in the study, which will be approximately four months. Today’s date is ____________, so this consent will be valid until __________.

I understand, that by law, I need not consent to this release of information. However, in order to participate in the proposed study, a release of information is required. I do so willingly and voluntarily for the purpose specified above. I acknowledge, by my signature, that I understand this release remains in effect until the above date, unless I specifically revoke it by a written notice. If the release is revoked, I am aware that my participation in the proposed study will be ended.

_________________________________________            ______________________
Client Signature                                    Date

_________________________________________            ______________________
Witness Signature                                   Date

Client Accepted Copy _____                        Client Declined Copy _____
Appendix D: EPDS Feedback Form

Postpartum Depression Screen Results

You recently completed the Edinburgh Postnatal Depression Scale, a screen used to measure postpartum depression symptoms. This screen does not confirm or diagnose the presence of postpartum depression, but can be predictive of possible postpartum depression development if symptoms are untreated. Your score could indicate that you are currently experiencing:

- Non-Significant Symptoms (0-7)
- Significant Symptoms (8+)

If your score fell into the “Significant” range, a professional counselor will contact you in person before being discharged from the hospital unless you decline such services. The purpose of this consult is to provide emotional support and, if indicated, a referral for ongoing treatment after discharge. If a referral is provided and accepted, you will be scheduled for your first outpatient appointment within a week of discharge.

If your score fell into the “Non-Significant Symptom” range and you are considering treatment, please refer to the referral list provided earlier and feel free to discuss any concerns or questions with your nurse or physician. If you have not received a referral list, one may be obtained through your nurse at any time. In addition, you can access providers in your area through your health insurance company by calling the benefits number on the back of your card.

If at any time, you experience any thoughts of harming yourself, others or your child, immediately call crisis intervention [(717) 851-5320 or 1-800-673-2496] or go to the nearest emergency department for assistance.

I acknowledge that my score fell into the “Significant” range and was offered a psychological consult and referral to outpatient psychological treatment. I have accepted this recommendation _____.

I have decided to decline the proposed consult and referral and agree to call crisis intervention or go to the nearest emergency department if I experience any thoughts of harming myself or others _____.

Patient Signature: _______________________________ Date: ______________

Investigator Signature: ___________________________ Date: ______________

Witness Signature: ______________________________ Date: ______________
### Appendix E: Random Assignment Table

25 Sets of 4 unique numbers per set, Range from 1 to 4.

<table>
<thead>
<tr>
<th>Set #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set #1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Set #2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Set #3</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Set #4</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Set #5</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Set #6</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Set #7</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Set #8</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Set #9</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Set #10</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Set #11</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Set #12</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Set #13</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Set #14</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Set #15</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Set #16</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Set #17</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Set #18</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Set #19</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Set #20</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Set #21</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Set #22</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Set #23</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Set #24</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Set #25</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### Appendix F: Measures

**Edinburgh Postpartum Depression Scale (EPDS)**
Edinburgh Postnatal Depression Scale\(^1\) (EPDS)

Name: ___________________________ Address: ___________________________

Your Date of Birth: ___________________________ Phone: ___________________________

Baby's Date of Birth: ___________________________

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

Here is an example, already completed.

I have felt happy:
\(\square\) Yes, all the time
\(\square\) Yes, most of the time This would mean: "I have felt happy most of the time" during the past week.
\(\square\) No, not very often Please complete the other questions in the same way.
\(\square\) No, not at all

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   \(\square\) As much as I always could
   \(\square\) Not quite so much now
   \(\square\) Definitely not so much
   \(\square\) Not at all

2. I have looked forward with enjoyment to things
   \(\square\) As much as I ever did
   \(\square\) Rather less than I used to
   \(\square\) Definitely less than I used to
   \(\square\) Hardly at all

3. I have blamed myself unnecessarily when things went wrong
   \(\square\) Yes, most of the time
   \(\square\) Yes, some of the time
   \(\square\) Not very often
   \(\square\) No, never

4. I have been anxious or worried for no good reason
   \(\square\) No, not at all
   \(\square\) Hardy ever
   \(\square\) Yes, sometimes
   \(\square\) Yes, very often

5. I have felt scared or panic-stricken for no very good reason
   \(\square\) Yes, quite a lot
   \(\square\) Yes, sometimes
   \(\square\) No, not much
   \(\square\) No, not at all

6. Things have been getting on top of me
   \(\square\) Yes, most of the time I haven't been able to cope at all
   \(\square\) Yes, sometimes I haven't been coping as well as usual
   \(\square\) No, most of the time I have copied quite well
   \(\square\) No, I have been coping as well as ever

7. I have been so unhappy that I have had difficulty sleeping
   \(\square\) Yes, most of the time
   \(\square\) Yes, sometimes
   \(\square\) Not very often
   \(\square\) No, not at all

8. I have felt sad or miserable
   \(\square\) Yes, most of the time
   \(\square\) Yes, quite often
   \(\square\) Not very often
   \(\square\) No, not at all

9. I have been so unhappy that I have been crying
   \(\square\) Yes, most of the time
   \(\square\) Yes, quite often
   \(\square\) Only occasionally
   \(\square\) No, never

10. The thought of harming myself has occurred to me
    \(\square\) Yes, quite often
    \(\square\) Sometimes
    \(\square\) Hardly ever
    \(\square\) Never

Administered/Reviewed by ___________________________ Date __________


Users may reproduce the scale without further permission providing they respect copyright by quoting the names of the authors, the title and the source of the paper in all reproduced copies.
Postpartum Depression Screening Scale (PDSS)

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:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly Agree</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 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.

*Stop here if you were asked to complete only the Short Form.*

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.
The Brief Measure of Social Support (BMSS)


**Social Support Questionnaire (Short Form)**

**Instructions:**

The following questions ask about people in your environment who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give the persons' initials, and their relation to you. Do not list more than one person next to each of the numbers beneath the question.

For the second part, circle how satisfied you are with the overall support you have. If you have had no support for a question, check the words "no one," but still rate your level of satisfaction. Do not list more than nine persons per question. Please answer all the questions as best you can. All your responses will be kept confidential.

**EXAMPLE:**

Who do you know whom you can trust with information that could get you in trouble?

<table>
<thead>
<tr>
<th>No one</th>
<th>1. T.I. (Brother)</th>
<th>4.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. S.A. (Mother)</td>
<td>5.</td>
<td>8.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>6.</td>
<td>9.</td>
<td></td>
</tr>
</tbody>
</table>

**How satisfied:**

| 6 – Very Satisfied | 5 – Fairly Satisfied | 4 – A Little Satisfied | 3 – A Little Dissatisfied | 2 – Fairly Dissatisfied | 1 – Very Dissatisfied |

1. **Whom can you really count on to be dependable when you need help?**

   **No one**

   | 1. | 4. | 7. |
   | 2. | 5. | 8. |
   | 3. | 6. | 9. |

   **How satisfied:**

   | 6 – Very Satisfied | 5 – Fairly Satisfied | 4 – A Little Satisfied | 3 – A Little Dissatisfied | 2 – Fairly Dissatisfied | 1 – Very Dissatisfied |

2. **Whom can you really count on to help you feel more relaxed when you are under pressure or tense?**

   **No one**

   | 1. | 4. | 7. |
   | 2. | 5. | 8. |
   | 3. | 6. | 9. |

   **How satisfied?**

   | 6 – Very Satisfied | 5 – Fairly Satisfied | 4 – A Little Satisfied | 3 – A Little Dissatisfied | 2 – Fairly Dissatisfied | 1 – Very Dissatisfied |
3. Who accepts you totally, including both your worst and your best points?

No one
1. 4. 7.
2. 5. 8.
3. 6. 9.

How satisfied?
6 – Very Satisfied 5 – Fairly Satisfied 4 – A Little Dissatisfied 3 – A Little Dissatisfied 2 – Fairly Dissatisfied 1 – Very Dissatisfied

4. Whom can you really count on to care about you, regardless of what is happening to you?

No one
1. 4. 7.
2. 5. 8.
3. 6. 9.

How satisfied?
6 – Very Satisfied 5 – Fairly Satisfied 4 – A Little Dissatisfied 3 – A Little Dissatisfied 2 – Fairly Dissatisfied 1 – Very Dissatisfied

5. Whom can you really count on to help you feel better when you are feeling generally down-in-the dumps?

No one
1. 4. 7.
2. 5. 8.
3. 6. 9.

How satisfied?
6 – Very Satisfied 5 – Fairly Satisfied 4 – A Little Dissatisfied 3 – A Little Dissatisfied 2 – Fairly Dissatisfied 1 – Very Dissatisfied

6. Whom can you count on to console you when you are very upset?

No one
1. 4. 7.
2. 5. 8.
3. 6. 9.

How satisfied?
6 – Very Satisfied 5 – Fairly Satisfied 4 – A Little Dissatisfied 3 – A Little Dissatisfied 2 – Fairly Dissatisfied 1 – Very Dissatisfied

---

TO SCORE SSQR:
1. Count the total number of people for each of the odd-numbered items. Add the totals together (max=54). Divide by 6 for per item SSQ Number Score, or SSQN.

2. Add the total Satisfaction scores for the 6 even-numbered items (max=36). Divide by 6 for per item SSQ Satisfaction scores or SSQS.

3. You can also compute a family score and a non-family score by using the method in #1 for all people described as family members, or not described as family members respectively.
Recent Life Events Questionnaire (RLEQ)

Listed below are a number of events. Please read each item carefully and then indicate whether or not each event has happened to you in the past year.

Please tick the **YES** box if the event has occurred.
Please tick the **still affects me** box if the event is still having an effect on your life.

<table>
<thead>
<tr>
<th>EVENT</th>
<th>YES</th>
<th>Still affects me</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you had a serious illness or been seriously injured?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Has one of your immediate family * been seriously ill or injured?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have any of your close friends or other close relatives been seriously ill or injured?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have any of your immediate family died?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have any of your other close relatives or close friends died?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you separated from your partner (not including death)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you had any serious problem with a close friend, neighbour or relative?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you, or an immediate family member been subject to serious racial abuse, attack or threats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you, or an immediate family member been subject to any abuse, attack, threat - perhaps due to you or someone close to you having a disability of any kind (i.e. a mental health problem, a learning disability or a physical problem)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you, or an immediate family member been subject to any other form of serious abuse, attack, or threat?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you or your partner been unemployed or seeking work for more than one month?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you or your partner been sacked from your job or made redundant?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you had any major financial difficulties (e.g. debts, difficulty paying bills)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you, or an immediate family member had any Police contact or been in a court appearance?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you or an immediate member of your family been burgled or mugged?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you or another individual who lives with you given birth?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you or another individual who lives with you suffered from a miscarriage or had a stillbirth?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you moved house (through choice)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you moved house (not through choice)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you had any housing difficulties?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have you had any other significant event (Please specify)?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Immediate family includes: mother, father, sister, brother, partner, child
Problem Solving Worksheet

The following list provides examples of common challenges many new mothers encounter following childbirth. Many of these factors can play a role in the availability of mental health treatment if it were needed. Please circle the items below that represent areas that may prevent you from seeking/receiving treatment for depressive symptoms if it were needed:

Support *(Would they support your need for treatment?)*

- Baby’s Father
- Parents
- Extended Family (grandparents, aunts, cousins…)
- Employer

Transportation

- Vehicle
- Baby seat/Carrier
- Drivers license
- Reliable transportation from other
- Access to public transportation
- Access to taxi/$$

Finances *(Could you use any of these options to pay for treatment?)*

- Medical Insurance
- Medical Assistance
- Other Assistance
- Employment / Income

Childcare *(Do you have access to any of these childcare options if needed?)*

- Daycare
- Family Help
- Nanny
- Other: ________________________________

***After completing this form, a counselor will assist with problem-solving strategies to address each concern checked above. This is a confidential document and service, so please feel free to discuss your concerns openly.***
Steps for Problem Solving

Name: ________________________    Date: _________________
(Code): _______

1. Identified Barriers to Treatment:
   If you were to need mental health treatment after returning home, what do you think might prevent you from seeking and receiving it?
   a. 
   b. 
   c. 
   d. 

2. Possible Solutions
   What would you tell a friend who wants mental health treatment but is facing this problem?
   a. 
   b. 
   c. 
   d. 

3. Choose Best Solution/Plan
   a. 
   b. 
   c. 
   d. 

4. How confident are you in your ability to carry out this plan?

*** If you experience any thoughts of harming yourself or others such as your child, immediately contact crisis intervention at 717-851-5320 or go to the nearest emergency department. There are trained counselors to provide support and guidance if you find yourself feeling unsafe.
Tables

Table 1

Frequencies and percentages of responses to EPDS items, where (n=18, and n=24)

<table>
<thead>
<tr>
<th>Source</th>
<th># Responses (f)</th>
<th>% Responses (p)</th>
<th>%Women endorsed item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=18) (n=24)</td>
<td>(n=18) (n=24)</td>
<td>(n=18) (n=24)</td>
</tr>
<tr>
<td>1. Laugh</td>
<td>1 2</td>
<td>1.6 2.4</td>
<td>5.6 10.0</td>
</tr>
<tr>
<td>2. Future</td>
<td>0 1</td>
<td>0 1.2</td>
<td>0 5.0</td>
</tr>
<tr>
<td>3. Blame</td>
<td>14 18</td>
<td>22.6 21.4</td>
<td>77.8 90.0</td>
</tr>
<tr>
<td>4. Anxiety</td>
<td>13 17</td>
<td>21.0 20.2</td>
<td>72.2 85.0</td>
</tr>
<tr>
<td>5. Scared</td>
<td>8 12</td>
<td>12.9 14.3</td>
<td>44.4 60.0</td>
</tr>
<tr>
<td>6. Coping</td>
<td>9 12</td>
<td>14.5 14.3</td>
<td>50.0 60.0</td>
</tr>
<tr>
<td>7. Sleep</td>
<td>4 5</td>
<td>6.5 6.0</td>
<td>22.2 25.0</td>
</tr>
<tr>
<td>8. Sadness</td>
<td>7 8</td>
<td>11.3 9.5</td>
<td>38.9 40.0</td>
</tr>
<tr>
<td>9. Crying</td>
<td>6 9</td>
<td>9.6 10.7</td>
<td>33.3 45.0</td>
</tr>
<tr>
<td>10. Harm</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>Total</td>
<td>62 84</td>
<td>100 100</td>
<td></td>
</tr>
</tbody>
</table>
Table 2

Frequencies and percentages of scores on the EPDS, where (n=18 and n=24)

<table>
<thead>
<tr>
<th>EPDS Items</th>
<th>Total Score (f)</th>
<th>% Total Score (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=18)</td>
<td>(n=24)</td>
</tr>
<tr>
<td>1. Laugh</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2. Future</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. Blame</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>4. Anxiety</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>5. Scared</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>6. Coping</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>7. Sleep</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>8. Sadness</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>9. Crying</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>10. Harm</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td>103</td>
</tr>
</tbody>
</table>
Table 3

Frequency and percentages of treatment barriers on the problem-solving form reported by women, where (n=20) and (n=24)

<table>
<thead>
<tr>
<th>Barrier</th>
<th>(f)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=20)</td>
<td>(n=24)</td>
</tr>
<tr>
<td>Poor Social Support</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Transportation</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Finances/Insurance</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Childcare</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Time</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>“Treatment doesn’t work”</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>“Private/Self”</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stigma</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Not recognize Symptoms</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>13</td>
<td>16</td>
</tr>
</tbody>
</table>

| None                        | (8/20) | (11/24) | 40.0 | 45.8 |

Barriers

| Practical                  | 46.2   | 50.0   |
| Belief-Based               | 53.8   | 50.0   |
Table 4

Mean numbers of EPDS scores and standard deviations between groups (n=24).

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>5.50</td>
<td>2.37</td>
</tr>
<tr>
<td>3</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>4</td>
<td>1.75</td>
<td>1.39</td>
</tr>
</tbody>
</table>
Table 5

Mean number of women reporting barriers between groups for the problem-solving worksheet (n = 24) & response to “helpful” item (n = 20).

<table>
<thead>
<tr>
<th>Group</th>
<th>Barriers (Raw)</th>
<th>Mean (1=Yes, 2=No)</th>
<th>SD</th>
<th>Helpful (Raw)</th>
<th>% Helpful</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>1.42</td>
<td>.49</td>
<td>12/12</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>1.50</td>
<td>.50</td>
<td>6/8</td>
<td>75%</td>
</tr>
</tbody>
</table>
Table 6

Means and standard deviations of demographic variables of subjects among conditions where (N=40).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1 Control</th>
<th>Group 2 EPDS</th>
<th>Group 3 PS</th>
<th>Group 4 EPDS &amp; PS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>24.6 (7.07)</td>
<td>27.9 (5.82)</td>
<td>25.6 (5.81)</td>
<td>26.6 (5.37)</td>
<td>26.2 (6.01)</td>
</tr>
<tr>
<td>Children</td>
<td>1.8 (1.32)</td>
<td>2.6 (1.84)</td>
<td>1.8 (1.14)</td>
<td>2.1 (1.13)</td>
<td>2.1 (1.36)</td>
</tr>
<tr>
<td>Delivery (1=N, 2=C)</td>
<td>1.1 (.32)</td>
<td>1.3 (.48)</td>
<td>1.4 (.51)</td>
<td>1.5 (.53)</td>
<td>1.3 (.46)</td>
</tr>
<tr>
<td>Marital (1=M, 2-6=NM)</td>
<td>1.7 (.67)</td>
<td>1.4 (.70)</td>
<td>1.5 (.67)</td>
<td>1.4 (.74)</td>
<td>1.5 (.70)</td>
</tr>
<tr>
<td>Education (Scale 1-5)</td>
<td>3.0 (1.25)</td>
<td>2.9 (1.37)</td>
<td>2.9 (1.44)</td>
<td>3.4 (1.30)</td>
<td>3.1 (1.34)</td>
</tr>
<tr>
<td>Income (Scale 1-7)</td>
<td>4.6 (1.84)</td>
<td>5.5 (1.65)</td>
<td>5.5 (1.38)</td>
<td>5.6 (1.69)</td>
<td>5.3 (1.64)</td>
</tr>
</tbody>
</table>
Table 7

Means and standard deviations of PDSS results among conditions where \(N=40\) and 5 is lowest possible score on subscales.

<table>
<thead>
<tr>
<th>PDSS Item With Cutoff</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep (14)</td>
<td>7.9</td>
<td>7.9</td>
<td>8.6</td>
<td>8.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Anxiety (15)</td>
<td>8.3</td>
<td>8.6</td>
<td>9.1</td>
<td>7.5</td>
<td>8.4</td>
</tr>
<tr>
<td>Emotional (14)</td>
<td>7.9</td>
<td>9.2</td>
<td>8.0</td>
<td>6.6</td>
<td>7.9</td>
</tr>
<tr>
<td>Confusion (14)</td>
<td>7.0</td>
<td>6.1</td>
<td>6.3</td>
<td>6.0</td>
<td>6.4</td>
</tr>
<tr>
<td>Loss of Self (13)</td>
<td>6.2</td>
<td>6.1</td>
<td>5.8</td>
<td>5.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Guilt/Shame (13)</td>
<td>11.0</td>
<td>5.7</td>
<td>6.8</td>
<td>5.4</td>
<td>7.2</td>
</tr>
<tr>
<td>Suicidal Thoughts (6)</td>
<td>5.1</td>
<td>5.0</td>
<td>5.2</td>
<td>5.0</td>
<td>5.1</td>
</tr>
<tr>
<td>PDSS Total (59)</td>
<td>48.4 (9.18)</td>
<td>48.6 (9.87)</td>
<td>49.8 (15.39)</td>
<td>43.8 (8.92)</td>
<td>47.7 (10.84)</td>
</tr>
<tr>
<td>PDSS Significant Where: 1=Normal</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>2=Significant Symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3=Positive Screen PPD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>(f) of Significant</td>
<td>(p) of Significant</td>
<td>(p) of Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>--------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td>1</td>
<td>20</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>2</td>
<td>40</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
<td>2</td>
<td>40</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>100</td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9

Means, frequencies and percentiles of subject variables obtaining significant PPDS results (n=5).

<table>
<thead>
<tr>
<th>Variable</th>
<th>$(m)$</th>
<th>$(f)$</th>
<th>$(p)$</th>
<th>Diff</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.2</td>
<td></td>
<td></td>
<td>+1.0</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>2.0</td>
<td></td>
<td>-0.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>3.4 (Part College)</td>
<td></td>
<td>+0.46</td>
<td>(Same)</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>5.4 (40-50K)</td>
<td></td>
<td>+.09</td>
<td>(Same)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>3</td>
<td>60%</td>
<td></td>
<td>+2%</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>2</td>
<td>40%</td>
<td></td>
<td>+8%</td>
<td></td>
</tr>
<tr>
<td>C-Section</td>
<td>2</td>
<td>40%</td>
<td></td>
<td>+10%</td>
<td></td>
</tr>
<tr>
<td>Natural</td>
<td>3</td>
<td>60%</td>
<td></td>
<td>-10%</td>
<td></td>
</tr>
</tbody>
</table>
Table 10

ANCOVA Analysis for Postpartum Depression Screening Scale

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>186.22</td>
<td>62.07</td>
<td>0.47</td>
<td>0.7048</td>
</tr>
<tr>
<td>Income</td>
<td>5</td>
<td>711.29</td>
<td>142.26</td>
<td>1.08</td>
<td>0.3912</td>
</tr>
<tr>
<td>Residuals</td>
<td>31</td>
<td>4087.26</td>
<td>131.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The resulting $R^2$ for this model is .18.

Tukey multiple comparisons of means (95% family-wise confidence level)

<table>
<thead>
<tr>
<th>Pairs</th>
<th>Difference</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>p-adj</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>0.20</td>
<td>-13.74</td>
<td>14.14</td>
<td>1.0000</td>
</tr>
<tr>
<td>3-1</td>
<td>1.35</td>
<td>-11.99</td>
<td>14.69</td>
<td>0.9926</td>
</tr>
<tr>
<td>4-1</td>
<td>-4.65</td>
<td>-19.43</td>
<td>10.13</td>
<td>0.8283</td>
</tr>
<tr>
<td>3-2</td>
<td>1.15</td>
<td>-12.19</td>
<td>14.49</td>
<td>0.9954</td>
</tr>
<tr>
<td>4-2</td>
<td>-4.85</td>
<td>-19.63</td>
<td>9.93</td>
<td>0.8098</td>
</tr>
<tr>
<td>4-3</td>
<td>-6.00</td>
<td>-20.22</td>
<td>8.22</td>
<td>0.6652</td>
</tr>
</tbody>
</table>
Figure 1

Difference between group means for PPDS scores.
Figure 2

Scatterplot of income and PDSS scores.
Table 11

**ANCOVA Analysis for Social Support Questionnaire**

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>2.73</td>
<td>0.91</td>
<td>2.41</td>
<td>0.0860</td>
</tr>
<tr>
<td>Income</td>
<td>5</td>
<td>13.43</td>
<td>2.69</td>
<td>7.10</td>
<td>0.0002</td>
</tr>
<tr>
<td>Residuals</td>
<td>31</td>
<td>11.73</td>
<td>0.38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The resulting $R^2$ for this model is .58.

**Tukey multiple comparisons of means (95% family-wise confidence level)**

<table>
<thead>
<tr>
<th>Pairs</th>
<th>Difference</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>p-adj</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>0.60</td>
<td>-0.15</td>
<td>1.35</td>
<td>0.1510</td>
</tr>
<tr>
<td>3-1</td>
<td>0.57</td>
<td>-0.15</td>
<td>1.28</td>
<td>0.1596</td>
</tr>
<tr>
<td>4-1</td>
<td>0.65</td>
<td>-0.14</td>
<td>1.44</td>
<td>0.1382</td>
</tr>
<tr>
<td>3-2</td>
<td>-0.03</td>
<td>-0.75</td>
<td>0.68</td>
<td>0.9993</td>
</tr>
<tr>
<td>4-2</td>
<td>0.05</td>
<td>-0.74</td>
<td>0.84</td>
<td>0.9982</td>
</tr>
<tr>
<td>4-3</td>
<td>0.08</td>
<td>-0.68</td>
<td>0.85</td>
<td>0.9907</td>
</tr>
</tbody>
</table>
Figure 3

Differences between group means for SSQR results.
Figure 4

Scatterplot of income and SSQR scores.
Table 12

ANCOVA Analysis for Recent Life Events

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>3</td>
<td>3.28</td>
<td>1.09</td>
<td>0.75</td>
<td>0.5334</td>
</tr>
<tr>
<td>Income</td>
<td>5</td>
<td>20.28</td>
<td>4.06</td>
<td>2.77</td>
<td>0.0352</td>
</tr>
<tr>
<td>Residuals</td>
<td>31</td>
<td>45.42</td>
<td>1.47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The resulting $R^2$ for this model is .34.

Tukey multiple comparisons of means (95% family-wise confidence level)

<table>
<thead>
<tr>
<th>Pairs</th>
<th>Difference</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>p-adj</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>-0.10</td>
<td>-1.57</td>
<td>1.37</td>
<td>0.9977</td>
</tr>
<tr>
<td>3-1</td>
<td>-0.30</td>
<td>-1.71</td>
<td>1.11</td>
<td>0.9377</td>
</tr>
<tr>
<td>4-1</td>
<td>-0.80</td>
<td>-2.36</td>
<td>0.76</td>
<td>0.5128</td>
</tr>
<tr>
<td>3-2</td>
<td>-0.20</td>
<td>-1.61</td>
<td>1.21</td>
<td>0.9801</td>
</tr>
<tr>
<td>4-2</td>
<td>-0.70</td>
<td>-2.26</td>
<td>0.86</td>
<td>0.6196</td>
</tr>
<tr>
<td>4-3</td>
<td>-0.50</td>
<td>-2.00</td>
<td>1.00</td>
<td>0.8023</td>
</tr>
</tbody>
</table>
Figure 5

Difference between means for RLEQ among groups.
Figure 6

Scatterplot of RLEQ scores among groups.
Table 13

Partial Effect Sizes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>$\eta^2_p$</th>
<th>$\omega^2_p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDSS</td>
<td>.04</td>
<td>.00</td>
</tr>
<tr>
<td>SSQ</td>
<td>.19</td>
<td>.10</td>
</tr>
<tr>
<td>RLE</td>
<td>.07</td>
<td>.00</td>
</tr>
</tbody>
</table>

These effect sizes reflect the effect of the *treatment* while holding the effect of *income* constant.
Table 14

Means, standard deviations, frequencies and percentiles of subjects utilizing treatment at post-test.

<table>
<thead>
<tr>
<th>Variable</th>
<th>(m)</th>
<th>(f)</th>
<th>(p)</th>
<th>Total Score</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>24.8 (7.5)</td>
<td></td>
<td></td>
<td>26.2 (6.01)</td>
<td>-1.4</td>
</tr>
<tr>
<td>Children</td>
<td>2.25 (1.09)</td>
<td></td>
<td></td>
<td>2.07 (1.36)</td>
<td>+0.2</td>
</tr>
<tr>
<td>Education</td>
<td>2.25 (1.09)</td>
<td></td>
<td></td>
<td>3.05 (1.34)</td>
<td>-.80</td>
</tr>
<tr>
<td>Income</td>
<td>6.5 (.50) (50-60K)</td>
<td></td>
<td></td>
<td>5.31 (1.64)</td>
<td>+1.19</td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td>2</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td></td>
<td>1</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohabitating</td>
<td></td>
<td>1</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPDS</td>
<td>51.3 (4.9)</td>
<td></td>
<td></td>
<td>47.7 (10.84)</td>
<td>+3.6</td>
</tr>
<tr>
<td>BMSS</td>
<td>5.25 (.83) (Fairly Satisfied)</td>
<td></td>
<td></td>
<td>5.56 (.78)</td>
<td>-.31</td>
</tr>
<tr>
<td>RLEQ</td>
<td>1.25 (.43) (Include 1 for childbirth)</td>
<td></td>
<td></td>
<td>2.00 (1.26)</td>
<td>-0.86</td>
</tr>
</tbody>
</table>
Table 15

Frequencies and percentiles of RLEQ scores compared with means and standard deviations of PPDS scores where (N = 40).

<table>
<thead>
<tr>
<th>RLEQ Score</th>
<th># Endorced (f)</th>
<th>(p)</th>
<th>(M) PPDS Score</th>
<th>(SD) PPDS Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19</td>
<td>47.5%</td>
<td>44.5</td>
<td>6.3</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>27.5%</td>
<td>47.9</td>
<td>11.7</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>10.0%</td>
<td>58.0</td>
<td>15.9</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>7.5%</td>
<td>49.3</td>
<td>5.5</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>5.0%</td>
<td>67.0</td>
<td>12.0</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>2.5%</td>
<td>45.0</td>
<td>0</td>
</tr>
</tbody>
</table>
Figure 7

Scatterplot of Recent Life Events Scores and Postpartum Depression Scores.
References


Biographical Data

NAME OF AUTHOR: Sabra Natasha Abboud
PLACE OF BIRTH: Elmhurst, Ill.
DATE OF BIRTH: August 30, 1972

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:
   York College of Pennsylvania, York, Pennsylvania
   Millersville University, Millersville, Pennsylvania
   Philadelphia College of Osteopathic Medicine, Philadelphia, Pennsylvania

DEGREES AND CERTIFICATES AWARDED
   Bachelor of Science in Psychology, 1994, York College of Pennsylvania
   Master’s of Science in Clinical Psychology, 2002, Millersville University
   Doctorate Candidate in Clinical Psychology, 2009, PCOM
   Certified Addictions Counselor Diplomat, 2004, PCB
   Licensed Professional Counselor (LPC), 2007

PROFESSIONAL EXPERIENCE
Behavioral Healthcare Consultants
York, Pennsylvania, January 2008 - Current

Adjunct Professor, Harrisburg Area Community College
Harrisburg, Pennsylvania, May 2004 – Present

Substance Abuse Therapist, New Insights
York, Pennsylvania, June 2002 – August 2004

Graduate Assistant, Millersville University Women’s Commission

Crisis Counselor, Psychiatric Technician, Substance Abuse Caseworker, and Child Life Advocate, Wellspan Health Services.

Therapist in Training, University of Pittsburgh Medical Center
Sports Concussion Program
Pittsburgh, Pennsylvania, August 2007 – December 2007

Therapist in Training, Lancaster General Hospital
Lancaster, Pennsylvania, August 2005 – August 2007