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CORRELATING HEALTH LOCUS OF CONTROL  
AND RISK FOR POSTPARTUM DEPRESSION

BY

ALYSSA JANE ABRAHAM

B.S., University of New Hampshire, 2003

THESIS

Submitted to the University of New Hampshire

In Partial Fulfillment of

The requirements for the Degree of

Master of Science

In

Nursing

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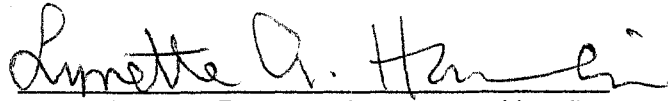
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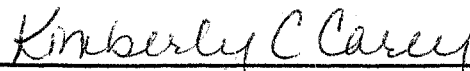
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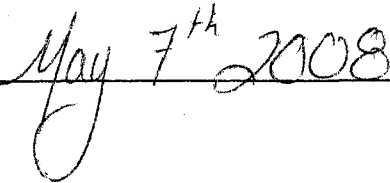
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## ABSTRACT

### CORRELATING HEALTH LOCUS OF CONTROL AND RISK FOR POSTPARTUM DEPRESSION

by

Alyssa J. Abraham

University of New Hampshire, May, 2008

The potential risk factors and the symptoms of postpartum depression have been identified in the healthcare literature. Literature shows that there is a relationship between perceived self-efficacy and risk for postpartum depression. The identification of health locus of control and self-efficacy in new mothers will allow nurses to create individualized patient care interventions for women at risk of developing postpartum depression, thus potentially improving outcomes. This study sought to determine if a correlation exists between risk for depression, as identified by the Edinburgh Postnatal Depression Scale, and health locus of control, as identified by the Multidimensional Health Locus of Control Scales. A population of 69 women was assessed at 6 weeks postpartum using both screening tools. A moderate relationship was found to support the hypothesis that women with a decreased risk for postpartum depression will identify an internal locus of control.

## CHAPTER I

### INTRODUCTION

#### Problem Statement

As a woman makes the transition into motherhood she may often report feelings of exhaustion, anxiety, isolation and a sense of being overwhelmed. The typical assumption is that she is experiencing the normal stress associated with the demands of being a new mother and caring for her infant. However, many of these same reported symptoms are associated with an increased risk for depression, especially in the early postpartum period. Practitioners report that this similarity between symptoms can complicate both the diagnosis and treatment of postpartum depression in the first year following childbirth. Given that maternal postpartum depression has been linked to lower secondary school testing scores, as well as violence and behavioral health issues in children, it becomes important for practitioners to have effective interventions designed for the treatment of postpartum depression (Murray, 1992; Wrate, Rooney & Thomas, 1985).

There are currently no standardized nursing interventions for a woman with symptoms of postpartum depression. Many practitioners feel that this is a result of the spectrum of reported symptoms and the variances in how depression is expressed in women as well as the varied cultural expectations of

motherhood. The lack of standardized practices and policies allows for new mothers experiencing symptoms of depression to be lost in the health care system and without appropriate intervention these women may remain in an untreated depression for years, affecting their own health as well as the health of their partners and children.

The diagnosis and treatment of postpartum depression is a task that is muddled by varied reporting of symptoms, the cultural expectations of parenting, the irregularity of patient and practitioner contact and the lack of standardized assessment protocol and intervention. However, because the effective treatment of postpartum depression is acutely dependent upon the accurate and timely diagnosis of the illness, there is a need for specific standards of nursing practice related to the screening of patients and the development of evidence based, individualized, nursing intervention plans. The structure of the American health care system results in the frequent dependence upon trained registered nurses to assess, document and intervene in the care of women in the ante partum and postpartum period. The Association of Women's Health, Obstetrics, and Neonatal Nursing [AWHONN] published a clinical statement in 2001 that took the following position regarding the screening of depression in puerperal women:

Screening mechanisms for potential risks for depression should begin during a woman's prenatal care. Health care providers can prepare women with risk factors and their family members by educating them as to the symptoms of postpartum depression, providing valuable educational materials, and arranging for follow-up mechanisms, including phone calls and/or home visits, to track their progress after giving birth. A significant risk factor in the duration of postpartum depression is the length of delay to adequate treatment (AWHONN, 2001, p. 2).

In addition to this clinical position statement, evidence-based practice recommendations for the screening of postpartum depression have recently been published in the Journal of Obstetric, Gynecologic and Neonatal Nursing. Researchers, through review of the literature, determined that early detection and individualized treatment plans were necessary to inhibit the far-reaching and devastating effects of postpartum depression upon the entire family unit (McQueen, Montgomery, Lappan-Gracon, Evans & Hunter, 2008). Recognizing the impact upon child development, the American Academy of Pediatrics (AAP) is now also calling for a system that will allow pediatric care providers to be educated about the screening of mothers for postpartum depression. The AAP goes on to note that from an ethical and litigious perspective, the benefits of screening outweigh the potential risks (Chaudron, Szilagyi, Campbell, Mounts & McInerney, 2007).

The publication of the position statements and research of these specialty organizations, as well as the increased request for public awareness related to increased media coverage, is setting a standard for nurse researchers to develop acceptable practices. These standards, which must be evidence based, should be designed to safely screen and accurately follow patients at risk for postpartum depression. Patients that are determined to be at an increased risk for postpartum depression need individualized plans of care, dependent upon the patient's symptoms and abilities. Although researchers have identified the need for timely screening as well as many potential risk factors for postpartum depression, the result of studies involving intervention based research have often

been inconclusive or have shown little effect in lessening the symptoms of depression in the patient. The continued establishment of correlations between personality traits, health behavior and other potential risk factors will allow nursing professionals caring for women deemed at risk for postpartum depression to develop interventional practices based on research and not on anecdotal evidence alone. When research evidence began to show a correlation between reported lack of social support and an increased risk for depression, nurses began to develop programs that fostered the creation of clinical and peer oriented support, thus improving outcomes for some patients. Currently, there have been no research studies that have attempted to correlate reported health locus of control, using the Multidimensional Health Locus of Control Scale (MHLC), with risk for depression, using the Edinburgh Postnatal Depression Scale (EPDS). Due to this gap in nursing research a study was undertaken to determine if relationships exist between health locus of control and risk for postpartum depression, thereby extending nursing knowledge so as to underpin future interventions for patients at risk for postpartum depression.

### **Research Hypotheses**

The research hypotheses for this study are:

1. Increased risk for postpartum depression will be positively correlated with a 'chance' or 'powerful others' oriented health locus of control.
2. Decreased risk for postpartum depression will be positively correlated with an internally oriented health locus of control.

## CHAPTER II

### LITERATURE REVIEW

The review of the literature includes historical clinical perspectives of depression in women of childbearing age, the study of self-efficacy and sociological and healthcare research in locus of control. Primary research literature focusing on the study's variables of postpartum depression and the use of the Edinburgh Postnatal Depression Scale screening tool, as well as health locus of control and the use and development of the Multidimensional Health Locus of Control Scales is also included.

#### Postpartum Depression

Through both research and anecdotal observation it has become general knowledge that many women show symptoms of depression following the birth of a child. Systematic reviews of psychiatric hospital records by Brooke in 1959 and Pugh, Jerath, Schmidt, and Reed in 1963 found that admission to psychiatric hospitals, as a result of an 'affective disorder' for childbearing-aged women, were more than double those of their male cohorts (Pitt, 1968). A large-scale circulation of a depression and anxiety questionnaire in the United Kingdom in 1965 showed that over half of women who bore children experienced depressive symptoms and that over a quarter of these women had the symptoms for an extended period of time, some longer than a year (Pitt, 1968). These early

findings encouraged nurses engaged in postpartum care and assessment to begin to seek effective screening tools and interventions for women showing symptoms of postpartum mood disturbances. Many practitioners began to look for patterns in the symptoms that women were expressing, and some conclusions began to surface related to the possible cause for this disparity in symptoms of depression in women versus men. The gap in the prevalence of depression and anxiety disorders in women between the ages of twenty-five and forty-four when compared to males of the same age continues to remain a standard today (Cott & Wisner, 2003).

Researchers estimate that approximately 50%-70% of women experience mood disturbances in the first two weeks after giving birth (Brockington, 1996). These minor mood symptoms, including lethargy, irritability and labile mood, typically resolve on their own and are most often attributed to the loss of restful sleep, the change in life routine related to caring for the new infant, and possible hormonal fluctuations related to post-pregnancy recovery. This condition is often called the 'baby blues' or 'postpartum blues'. Depressive symptoms are thought to be experienced by between 20% and 25% of the postpartum population (MacQueen & Chokka, 2004). Another 13% of the total population is thought to actually experience true postpartum depression (PPD) (O'Hara & Swain, 1996). The American Psychiatric Association describes PPD as an episode of depression that begins at least four weeks after giving birth and is characterized by changes in diet, psychomotor and cognitive abilities, feelings of guilt and



worthlessness, loss of energy, difficulty with decision making and at times thoughts of self harm or harm to others (APA, 1994).

Currently, researchers have found that there are some risk factors that have been correlated to an increased risk for depression in the postpartum period. These risk factors include a past history of psychiatric illness, disappointment in social supports, marital problems, experiencing multiple life events simultaneously, and dissatisfaction with the infant (Boyce & Hickney, 2005). The research by Boyce and Hickney also noted that women who identified themselves as having a “vulnerable personality” also had a higher incidence of postpartum depression. This idea is linked closely to self-efficacy research done in the 1970s (Bandura, 1977). Self-efficacy is defined by sociological researchers as the personal understanding that the individual has the ability to control their environment and life circumstances (Maciejewski, Prigerson & Mazure, 2000). Bandura further established that perceived self-efficacy influenced coping behavior and psychological stress reactions (Bandura, 1982).

Sociological and nursing researchers have been exploring the links between depression and self-efficacy since Bandura’s work was originally published. In 2000, Maciejewski, Prigerson and Mazure published research that used the longitudinal sample of 2858 adults in the Americans’ Changing Lives study. The research aimed to examine the effects that reported traits linked to a sense of self-efficacy would mediate the effects of stressful life events on symptoms of depression. Researchers found, for people already expressing previous depressive symptoms and reporting a diagnosis of depression in the

initial interviews, a greater sense of self-efficacy at follow-up interviews was strongly associated with the reporting of less severe depressive symptoms (Maciejewski, Prigerson & Mazure, 2000). Because there is an opinion that among other factors, postpartum depression may be a response to a stressful life event, researchers are now examining the link between self-efficacy and postpartum depression.

In 2006, Haslam, Pakenham and Smith published the results of their study that directly explored maternal self-efficacy, social support, and postpartum depression. Participants were screened for depression in their third trimester and again at four weeks postpartum. In addition to depression screening, participants were assessed for maternal self-efficacy and perceived social support, including partner and parental support. It was determined that increased levels of self-efficacy and parental support were related to decreased levels of depression and that maternal self-efficacy was a mediator in the relationship between parental support and depressive symptoms in the post-partum period (Haslam, Pakenham & Smith, 2006). The researchers felt that based on Badura's (1977) clinical descriptions of the attainment of self-efficacy, parental support encouraged self-efficacy in new mothers. Support from parents increased maternal role adjustment by providing trusted information about infant care and that the probable use of verbal praise and encouragement from parents increased the sense of self-efficacy. It was further hypothesized that increased self-efficacy in the mother may protect her from the development of depressive symptoms in the postpartum period by enhancing her sense of control over stressful or

unforeseen situations and by increasing her sense of confidence in her parenting abilities.

The findings of Haslam, Pakenham and Smith (2006) reinforced a study by Cutrona and Troutman published in 1986. In this study the researchers hypothesized that women who were caring for an infant who was identified as having a difficult temperament would feel less competent in their parenting roles and thus experience more depressive symptoms. The researchers further hypothesized that women who reported high levels of support in the prenatal period would be less impacted by the stress of caring for a difficult infant. Results of the study support the hypothesis and shed further light on the role that support plays in the postpartum period. Mothers with a higher level of perceived support showed higher levels of confidence in infant care skills. Thus there was a relationship shown between maternal self-efficacy, which was fostered through social support and a decrease in the report of depressive symptoms (Cutrona & Troutman, 1986). Practitioners hope that the development of further correlations between attributes such as social support and self-efficacy will allow for the development of improved patient centered interventions to both prevent postpartum depression and decrease the severity of the reported symptoms.

Many sociological researchers have studied the concept of parenting and the stress process. The theory of the stress process focuses on the psychological response to expected and unexpected life events. The expected transition into motherhood is often coupled with an increase in reported stress symptoms related to the changes in life-style, unexpected infant care issues and

lack of perceived support. In 1996 Terry, Mayocchi and Hynes tested the stress-coping model of postpartum depression. The study was based on previously published research that identified a potential link between postpartum depression and a variety of risk factors. The researchers felt that using the conceptual framework of the stress and coping paradigm could incorporate the risk factors of stress, locus of control and social support. The first construct of the model is the idea that a mother's coping resources, including her identified disposition and her support systems, will influence the probability that a mother will show signs of postpartum depression. The second construct of the model proposes that a woman will be at an increased risk for depression if she identifies high levels of stress throughout her pregnancy and the postpartum period. Finally, the model predicts that the coping strategies a mother uses in response to transitioning to motherhood will influence her risk for developing postpartum depression (Terry, Mayocchi & Hynes, 1996).

The study was longitudinal and consisted of three waves of data collection, beginning in the final trimester of pregnancy, again at four weeks postpartum and finally at five months after birth. At each wave of data collection participants were asked to submit different measurement tools related to the stress and coping paradigm; Levenson's locus of control scales, a survey related to perceived social support and partner support, infant temperament, and depression screening tools. The data analysis showed that there was a moderate relationship identified between postpartum depressive symptoms and stress and coping responses and resources. There was also a weakly significant

relationship identified between postpartum depression and long-enduring coping mechanisms, such as self-esteem and family support. The researchers also found, that when levels of prenatal depression were controlled for, women were more likely to be depressed in the postpartum period if they were seen to show high levels of wishful thinking and lower levels of skills mastery. The researchers also felt that there was little evidence to unequivocally show a relationship between perceived control and depression symptoms. However, the researchers state in the study limitations that there was a lack of clinical diagnostic testing for depressive symptoms and that the timing of the assessments may have affected the outcomes. The researchers were also seeking a relationship between generalized locus of control and depression. Research has shown that there is a relationship between health practices and the more specific construct of health locus of control. There is need for further research to explore the ideas of locus of control and postpartum depression within the context of health beliefs (Terry, Mayocchi & Hynes, 1996)

### **Health Locus of Control**

Clinicians and researchers interested in the health beliefs of the public have long been interested in the perception of self-control over health behavior. A large cannon of health research exists that seeks to show correlational relationships between certain health behaviors and reported sense of control. This idea of linking perceived sense of control to behavior stems from Rotter's social learning theories. Rotter took the findings of early behavioral researchers, such as Pavlov, and further explored the idea learned behavior was not

motivated by reward alone. He surmised that cognition, as predetermined expectations also motivated learned human behavior (Rotter, 1954). Rotter took these findings further and published a text in 1972 that explained a theory of personality that showed that an individual has habitual ways of looking at their own experiences based on their personal feelings about locus of control (Rotter, Chance & Phares, 1972). Essentially they defined people as either being 'internals', individuals who feel that they have control over the events and decisions that they experience, or as being 'externals', individuals who feel that the events and decisions in their lives were outside of their control. The findings of this social learning theory have been used to develop theories of economic controls and health behavior.

Following the publication of Rotter's theories of social learning, health care researchers began to develop tools used to measure the constructs of internal and external health locus of control. In 1976 Wallston, Wallston, Kaplan and Maides, developed the Health Locus of Control (HLC) scale. It was their observation that when using the scales developed by Rotter, it was difficult to apply those findings directly to health related research. Therefore, the HLC was developed to show the relationship between a belief locus of control and health behavior. Subjects in the study were asked to take the HLC and Rotter's I-E scales. They were also asked to answer questions about their previous understanding of a health condition (hypertension) and the overall value they place on health. The subjects then read brief information about high blood pressure and its effects on health. Following the reading all the subjects were

asked to take a quiz about what they had read and then were provided the opportunity to take home educational material related to high blood pressure and health. It was found that the patients who were identified as being internally oriented chose to seek more information about the condition and placed a larger value on health (Wallston, Wallston, Kaplan & Maides, 1976). However when the test was repeated for the health condition of obesity, the results were varied and inconclusive. The researchers argue that this was evidence of the complexity of the idea of locus of control and social learning theory and felt that further study was needed to develop more specific screening tools.

Based on the findings of the HLC scale research, Wallston, Wallston and DeVellis constructed another assessment tool with the purpose of further exploring the multidimensionality of locus of control. The scales were developed using a large heterogeneous population and showed stronger alpha reliability than the original HLC (Wallston, Wallston & DeVellis, 1978). These scales identified three constructs: internality, chance externality and powerful other externality. The resulting assessment tool, known as the Multidimensional Health Locus of Control (MHLC) scales, were based on the scales used to identify generalized locus of control beliefs developed by Levenson. The researchers speculated that through the assessment of three dimensions of health locus of control, instead of two, there would be a deeper understanding of health behaviors and improved predictors of health outcomes may be identified.

Since the development of the revised scales it has been repeatedly shown in research studies that there is a positive relationship between a sense of

internal health locus of control, health seeking behaviors and a desire for control over one's health (Wallston & Wallston, 1978; Wallston, Smith, King, Forsberg, Wallston & Nagy, 1983; Jackson, Tucker & Herman, 2007). In a study published in 1976, researchers at University of Manitoba found that there was relationship between locus of control expression and the reporting of depressive symptoms (Prociuk, Breen & Lussier, 1976). Researchers screened 101 college students using Rotter's I-E scales, Beck's Depression Inventory and the Hopelessness Scale. It was found that people who expressed a sense of hopelessness about their future also identified an external locus of control. These same people also had higher rate of the reporting of depressive symptoms. The researchers further speculated that this could be the result of the phenomenon of learned helplessness.

In 2007 Jackson, Tucker and Herman found that in a sample of college students health value, self-efficacy and perceived support from family and significant others resulted in the engagement of activities that are deemed health-promoting. The researchers felt that the improvement of the health of college aged students could be obtained through interventions designed to increase self-esteem, develop better support systems and the creation of modifying factors, such as placing value on health and perception of health control, health benefits and health barriers. Generalization of these findings to the population at broad is difficult because the sample size consisted of 49 men and 113 women, with a median age of 20. However, it is important to note that the women studied were observed to be of childbearing age and that the



correlations between the variables was strongly significant (Jackson, Tucker & Herman, 2007).

The separate but related ideas of learned helplessness and control in the context of maternal self-efficacy were explored by Donovan, Leavitt & Walsh in 1990. In this study the researchers hypothesized that inefficacy, or a sense that the mother is lacking in control, interfered with her ability to respond to infant care tasks. It was determined that women with high illusory control who failed at infant care tasks were more susceptible to feeling a sense of helplessness and subsequent distress related to their relationship with the infant. This sense of failure in infant care tasks, coupled with an increasing sense of helplessness and the disappointment of not being able to perform tasks, lead to an increased risk for symptoms of depression (Donovan, Leavitt & Walsh, 1990).

Researchers have shown a link between depressive symptoms and self-efficacy and locus of control. There has also been research to establish a correlation between postpartum depression and self-efficacy, stress and coping, and social support. There is a need for further research to explore the constructs surrounding locus of control and postpartum depression. The development of a correlation between risk factors and postpartum depression will allow nurses to develop standardized nursing care practices to improve the reported outcomes for patients affected by postpartum depressive symptoms. An establishment of research to support anecdotally suspected relationships between risk factors will increase the likelihood that at risk patients will receive care and treatment earlier in their pregnancy, thus potentially improving their experiences of stress,

utilization of coping mechanisms and access to resources and, in turn, potentially decreasing their risk for the development of PPD. Interventions such as peer-led support groups that foster the development of infant care skills and teach coping strategies and the setting of specific attainable goals for at risk women with positive reinforcement from nursing professionals may help women, who identify an external locus of control, to decrease their risk for depression in the postnatal period.

## **CHAPTER III**

### **METHODOLOGY**

#### **Research Design**

A quantitative correlational study was completed using two previously designed instruments. The purpose of the study was to investigate if a relationship exists between risk for postpartum depression, as determined using the Edinburgh Postnatal Depression Scale (EPDS), and health locus of control, as determined by the Multidimensional Health Locus of Control Scales (MHLC).

#### **Setting**

The study was conducted in a public community health clinic in coastal New Hampshire that offers women's health care. The clinic was chosen because of its recently established protocol for prenatal and postnatal depression screening of all patients who seek antenatal care. Because the program for screening had already been established, patients and staff were familiar with the use of the EPDS screening tool. Postpartum patients were invited to participate upon arrival in the office for follow-up care.

#### **Sample**

The population consisted of a convenience sample of 89 women 18 years of age or older who were six weeks postpartum between November 28<sup>th</sup>, 2007 and January 31<sup>st</sup>, 2008. Inclusion criteria were: (a) women 18 years of age or

older at the time that they gave birth; (b) women that were six weeks postpartum who had delivered between September 2007 and December 2007; (c) women who registered in the clinic for their six week postpartum office visit with a care provider. Exclusion criteria were: (a) women that were minors at the time of the birth of their child; (b) women that did not maintain the recommended six-week postpartum office visits; (c) women that submitted incomplete surveys.

A total of nine patients were ineligible because they were under the age of 18. Of the 73 surveys that were returned, four were not complete and thus were not included in the analysis of the data. The final sample consisted of 69 subjects.

### **Procedure**

A letter of invitation was given to each subject as they registered for a six-week postpartum visit in the clinic. The letter contained details about the study and additional information necessary for informed consent (Appendix A). In addition to the letter, each potential subject received two anonymous survey tools, the EPDS and the MHLC scales. Consent for participation in the study was implied by the completion and submission of the two survey tools. All subjects were asked to anonymously submit the completed tools prior to leaving the office and encouraged to seek care at the office if the survey questions caused them to feel concerned about their own health.

### **Data Collection**

Each of the 73 surveys submitted were reviewed by the researcher. Every survey was hand numbered in the order that it was reviewed and the researcher

maintained a running log that presented data in the aggregate. The logged data consisted of the raw scores obtained from the evaluation of the EPDS and the MHLC scales. The research variables were the identified risk for postpartum depression and the identified belief of health locus of control. Risk was defined as either being low, meaning the subject scored a 12 or lower on the EPDS, or high, meaning that the subject scored a 13 or higher on the EPDS. The identified locus of health control was either internal, meaning the subject identified a sense of self-control over their own health; chance, meaning that the subject identified that their own health was a matter of chance; or powerful others, meaning that the subject identified that their health was controlled by powerful outside agents (family, healthcare providers, etc). These variables were entered into an Excel spreadsheet to further organize the data points to be studied.

### **Protection of Human Subjects**

Due to the involvement of human research subjects, the proposed research study was reviewed by the Institutional Review Board at the Office of Sponsored Research at the University of New Hampshire. Approval to conduct the study was obtained in November of 2007 (Appendix C). The research proposal was also reviewed and approved by the Perinatal Director at the community health clinic (Appendix B). Participation in the study did not alter the subject's plan of care and was not compensated. Risk to the subject was minimized by the omission of any identifying personal health information from the submitted surveys. All data was analyzed in the aggregate. The only identified risk to the subject was seen as the loss of time to complete the survey, less than

ten minutes. Subjects had the opportunity to leave the study at any time prior to submission of the survey, by either not completing or by not submitting the survey. The rights of the participant were expressly reviewed in the invitation letter given to each potential subject.

### **Benefits**

Study subjects potentially benefited from the knowledge that their participation in the study would result in the establishment of new data that would provide insight into the relationship between health locus of control and postpartum depression. This data has the potential to improve the development of appropriate nursing interventions for patients seen as being at risk for, or experiencing symptoms of postpartum depression.

### **Instrumentation**

Each subject received two survey tools. The first tool, the EPDS, was used to determine the subject's risk for postpartum depression. The tool was reproduced as it was originally published (Cox, Holden & Sagovsky, 1987). The EPDS has been shown, through multiple research studies, to be a reliable tool, with sensitivity, specificity and a positive predictive value (Cox, Holden & Sagovsky, 1987; Thompson, Harris, Lazarus, & Richards, 1998). This remains true with the use of the EPDS in different cultural groups, when translated in to different languages and when administered at different intervals through out the postpartum period (Adewuya, Eegunranti & Lawal, 2004; Fuggle, Glover, Khan & Haydon, 2002; Eberhard-Gran, Eskild, Tambs, Schei & Opjordsmoen, 2001). Nursing care providers report that the EPDS is a tool that is convenient and easy

to administer (McQueen, Montgomery, Lappan-Gracon, Evans & Hunter, 2008). Although it is important to note here that the EPDS, while having been shown to correlate closely with the actual diagnosis of postpartum depression, was designed to identify risk for depression in the postnatal period and that further clinical evaluation of the subject is needed before a definitive diagnosis can be made. The EPDS is scored on a scale from 0-30, with a higher score indicating a higher risk for PPD. A high score should not be seen as a definitive diagnosis of PPD, nor should a low score be seen as an absence of the diagnosis. The tool is only meant to identify risk, and the continued nursing assessment of the subject's emotional and mental health status should continue throughout the postpartum period regardless of the EPDS scores.

The second survey tool administered consisted of the MHLC scales. The MHLC was reproduced as it was originally published (Wallston, Wallston & DeVellis, 1978). The tool consists of three separate scales, developed to identify the health-related beliefs of an individual as being mostly internal, a result of chance, or under the control of powerful outsiders (Wallston, Wallston & DeVellis, 1978). The MHLC has been shown to be a moderately reliable tool, which has been used to explore the health related beliefs of patients experiencing a vast range of medical conditions (Affleck, Tennen, Urrows & Higgins, 1994; Wallston, Smith, Wallston, King, Rye & Heim, 1987). The authors explain that the definitive reliability and validity is difficult to ascertain because of the varied patient populations and health conditions studied using the scales (Wallston, 1993). However, the MHLC scales have been shown to correlate closely with

Levenson's scales designed to examine generalized locus of control over health beliefs as well as with Rotter's original theories of social learning (Wallston, Wallston & DeVellis, 1978). Each of the three MHLC is scored on a scale from 6-36. The patient is thought to identify most closely to the scale that is found to have the highest scoring, although each scale should be considered in a complete analysis of health locus of control. This is especially true if two of the scales are found to have equal scoring. The nursing professional should use the tool to open a line of inquiry with the patient about health beliefs and locus of control.

The EPDS scale is copyrighted through the British Journal of Psychiatry. Express written permission is not needed if the tool is used as it was published, not manipulated in anyway and properly cited. The MHLC scales remain part of the public domain and written permission from the creators is not required for use of the scales in research and clinical practice (Wallston, 1993).



## **CHAPTER IV**

### **DATA ANALYSIS**

#### **Data Analysis Procedure**

Statistical analysis of the data was performed using STATA-10 software program designed for data and statistical analysis, produced by STATA Corp. Each survey submitted by the subject was hand numbered and scored by the researcher. The four scored scales from each survey were entered into an Excel spreadsheet. This Excel spreadsheet was sent to a statistician and the data analysis was performed. A pair-wise correlation between the EPDS scores and the individual scales of the MHLC was performed to determine the strength, direction and statistical significance of the relationship between risk for depression and identified orientation of health locus of control. A power analysis performed prior to the completion of the study showed that a sample size of 68 subjects was needed for an identified confidence level of 95% with a minimum alpha value of 0.05.

#### **Study Findings**

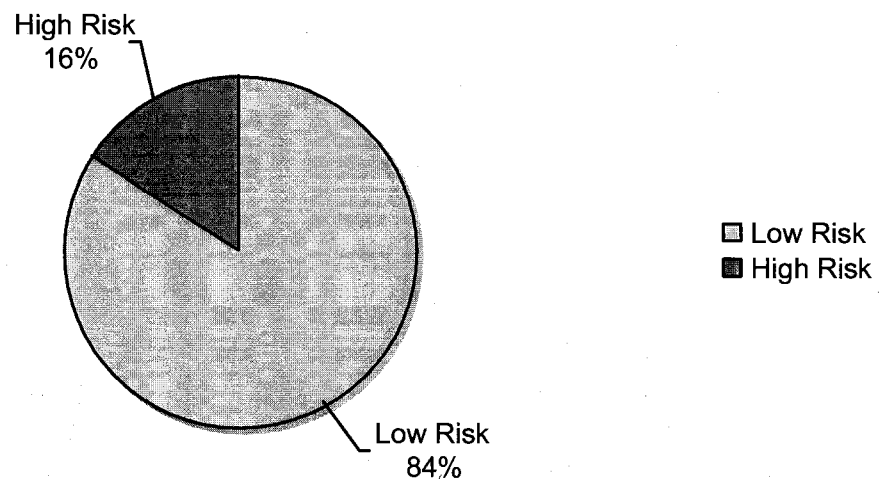
The overall risk for depression of the population was extrapolated from the EPDS scores, as shown below in Figure 1. Within the final population of 69 subjects, 11, or 16%, were determined to be at an increased risk for postpartum depression based on a self-reported score greater than 12 on the EPDS. The

remaining 58 subjects, or 84% of the population, were seen as being at a lower risk for depression based on a self-reported score of 12 or less on the EPDS. These numbers closely reflect the previously discussed estimated rates of PPD in the total population.

Figure 1:

Risk for PPD in Sample Population:

Sample population: n=69



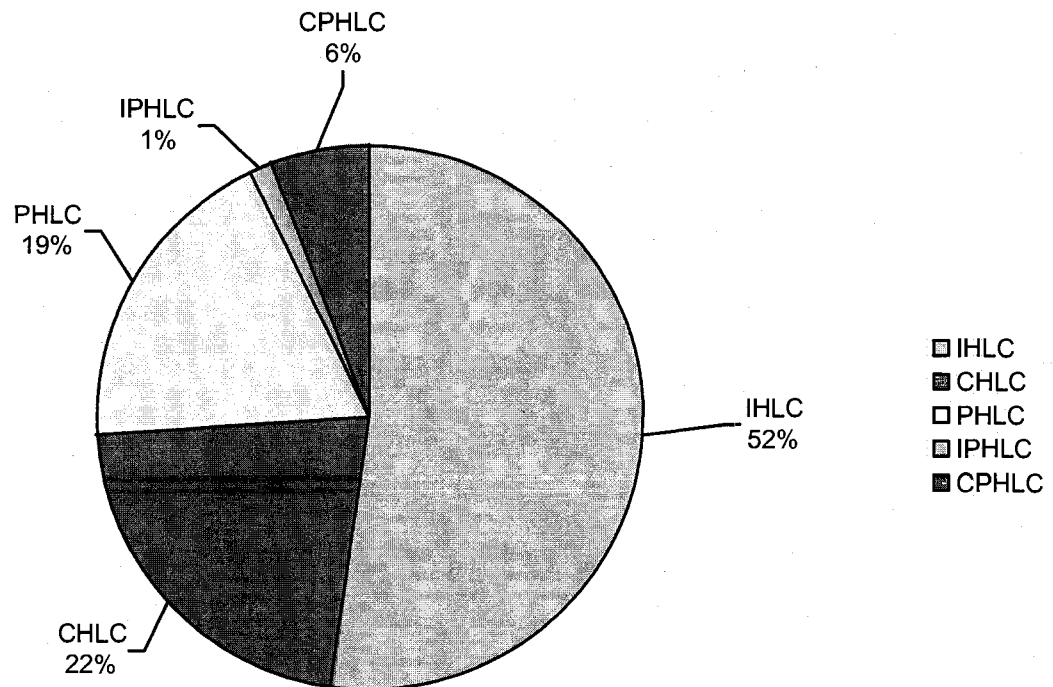
While reviewing the findings of the MHLC scales it was noted that more than half of the sample population, or 36 subjects, identified an internal locus of control (IHLC). Of the remaining subjects 15 identified a sense that chance controlled their health (CHLC). An additional 13 subjects reported that powerful others controlled their health (PHLC). One subject reported a sense that their health was controlled both internally and by powerful others (IPHLC) Finally, four

subjects identified a sense that their health was a result of chance and powerful others being in control (CPHLC). These findings are reviewed below in Figure 2.

Figure 2:

Health Locus of Control in Sample Population:

Sample population: n=69



The scores of each scale were examined for central tendency. The mean values for the EPDS, IHLC, CHLC and PHLC within the sample population were determined. These values show that the sample population reported a mean score on the EPDS that shows the overall tendency of the sample to be at a low

risk for depression. The mean scores of each of the MHLC scales also show that within the sample population the IHLC was the highest scored scale. This shows that as a population, the subjects showed a tendency toward the identification of an internal locus of control. These measures of central tendency for the sample population are shown in Table 1 below.

Table 1:

Measures of Central Tendency

	<b>Sample</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum Score</b>	<b>Maximum Score</b>
<b>EPDS</b>	<b>69</b>	<b>7.41</b>	<b>4.89</b>	<b>0</b>	<b>20</b>
<b>IHLC</b>	<b>69</b>	<b>22.52</b>	<b>4.65</b>	<b>14</b>	<b>31</b>
<b>CHLC</b>	<b>69</b>	<b>18.39</b>	<b>4.27</b>	<b>10</b>	<b>28</b>
<b>PHLC</b>	<b>69</b>	<b>19.49</b>	<b>3.16</b>	<b>13</b>	<b>28</b>

Normal Range of Values: EPDS: 0-30; IHLC: 6-36; CHLC: 6-36; PHLC: 6-36

After the variables were reviewed individually, the data was correlated for a relationship between risk for PPD and health locus of control. It was determined when correlating the EPDS scores and the IHLC scores that there was a moderate inverse relationship present, meaning that as the IHLC score increased, the EPDS score decreased. This shows that as the risk for PPD in the population decreased, the reported sense of an IHLC increased. It was also noted that there was a moderate positive relationship between risk for PPD and the reporting of a CHLC. Finally, it was determined there was a strong positive

relationship between risk for PPD and the identification of a PHLC. These findings are summarized in Table 2 below.

Table 2:

Pearson r Correlation of Variables Risk for PPD and Identified HLC

Total Sample Population: n=69

<b>Score Correlations</b>	<b>EPDS</b>	<b>IHLC</b>	<b>CHLC</b>	<b>PHLC</b>
<b>EPDS Pearson Correlation (r)</b> <b>Significance (p)</b>	<b>1.000</b>			
<b>IHLC Pearson Correlation (r)</b> <b>Significance (p)</b>	<b>-0.690</b> <b>0.000</b>	<b>1.000</b>		
<b>CHLC Pearson Correlation (r)</b> <b>Significance (p)</b>	<b>0.611</b> <b>0.000</b>	<b>-0.765</b> <b>0.000</b>	<b>1.000</b>	
<b>PHLC Pearson Correlation (r)</b> <b>Significance (p)</b>	<b>0.711</b> <b>0.000</b>	<b>-0.642</b> <b>0.000</b>	<b>0.549</b> <b>0.000</b>	<b>1.000</b>

## **CHAPTER V**

### **DISCUSSION**

#### **Conclusion**

The purpose of this study was to identify a relationship between a woman's risk for PPD and their reported health locus of control. This relationship between a behavioral health diagnosis with potential adverse effects and health behavior beliefs can be used to develop better nursing interventions to support women experiencing symptoms of postpartum depression. The findings of the study were examined upon the basis of historical perspectives of health behavior beliefs and within the context of current multi-disciplinary research of postpartum depression. The results of the data analysis moderately support the hypothesis that a woman with a decreased risk for postpartum depression will identify an internal health locus of control. There was also a moderate correlation that supports the hypothesis that a woman with increased risk for postnatal depression will identify an external chance oriented health locus of control. A strong positive correlational relationship was also found between an increased risk for postnatal depression and a powerful others oriented health locus of control. Of important note is that the correlated data does not show a causal relationship and the practitioner should not deem it as such. However, these

findings can be used by nursing professionals to develop patient centered interventions to improve the attributes of self-esteem, self-efficacy, perceived self-control as well as the peer, professional and social support systems of women at risk for postpartum depression.

### **Study Limitations**

The study was limited by the relatively small sample size. Researchers have stated that the typically small sample size used in the analysis and study of postpartum depression often makes it difficult to generalize the findings across a large and varied population (McQueen, Montgomery, Lappan-Gracon, Evans & Hunter, 2008). In addition to the size of the sample, the convenience sampling method that was used also presents limitations to the use of the data. The convenience sampling method does not allow the researcher to control for biases that may be present in the subject population. The study was also limited by the brevity of time available due to the necessity of conducting the research within the context of the university's academic calendar. Also, the lack of clinical assessment of depressive symptoms of participants limits the data to a risk assessment only and not a definitive diagnostic relationship to be used in clinical practice.

### **Implications for Nursing Practice**

Although it is not possible to generalize these findings across the total population of women seeking prenatal or postnatal care in the United States, it is important for nursing professionals to recognize that perceived locus of health control may contribute to the varied risk factors that complicate the diagnosis and

treatment of women with PPD. As prenatal and postnatal depression screening becomes more common in clinical practice, it may become practical for clinicians to begin to screen for health locus of control as well. Despite the limited research, the health locus of control screening itself may present an opportunity for practitioners and patients to openly communicate about health care expectations and perceived success of infant and self care skills. This open communication will allow patients and practitioners to develop attainable personal goals and to provide patient specific support systems, thus potentially increasing self-efficacy fostering internal locus of control beliefs in women deemed to be at an increased risk for PPD.

### **Recommendations for Future Research**

Further research is needed using a larger population from varied socio-cultural and economic backgrounds. Further study should also inquire into the efficacy of earlier screening for health locus of control beliefs in the prenatal period of pregnancy. A relationship between health locus of control beliefs and risk factors in the prenatal period may allow clinicians to develop improved patient interventions for the entire perinatal period. This preliminary study should steer the research toward further establishment of a relationship between the variables of depression and locus of control in different stages of the transition to motherhood. The continued exploration of these variables will establish a stronger evidence base from which nursing professionals may draw knowledge to develop patient care policies and procedures, thus improving patient care and establishing measurable, evidence-based outcomes.



## **Summary**

Although further research is recommended, the findings of this study moderately support the hypothesis that a woman with a decreased risk for PPD will identify an internal locus of control over her health. The findings also support, in the sample population, that a woman with an increased risk for depression will identify an external locus of control over her health. A moderate relationship was found between increased risk for PPD and chance orientated locus of health control. Further analysis of the data also showed a strong relationship between increased risk for PPD and the identification of the belief that powerful others have health control. These findings support previous research focused on maternal mood disturbances and reported self-efficacy. The relationship shown between the variables in this research should not be seen as a casual effect, but instead should be used by nursing professionals to guide the clinical care of patients at risk for or experiencing symptoms of PPD.

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## APPENDICES

## APPENDIX A

### INVITATION LETTER

November 2007

Welcome,

Congratulations on the birth of your new baby! I am a graduate student in the Master's of Nursing program at the University of New Hampshire and I am conducting research for my degree. As a researcher I am seeking to identify a relationship between a woman's risk for postpartum depression and her feelings of control over her own health.

You have been asked to participate in this study chosen because you are a woman, over the age of eighteen and have recently given birth, and are being seen at Avis Goodwin Community Health Center (AGCHC). You are asked to fill out a questionnaire, which should only take about 10 minutes to complete. The questionnaire asks for information about how you have felt emotionally over the last week and about how much control you feel over your own health in general. The survey will not ask for any identifying information and participation in this study is strictly confidential and completely voluntary. Your decision to complete and submit the survey into the locked box at the registration desk is also your consent to participate. You may decline from participating at any time by either not completing the survey, or by not submitting it. Your decision to participate or not to participate will not impact your care at AGCHC. Should you have any questions regarding this research study you may email the researcher at [aabraham@cisunix.unh.edu](mailto:aabraham@cisunix.unh.edu).

There are no risks associated with participation in this study except for your time to complete the survey. If, while in the process of completing the survey, you have questions or concerns regarding your own health, please discuss them with your care provider at this visit. You will benefit from the understanding that you have provided information that will positively impact future birth experiences of new mothers. All data collected will be stored securely, only myself, my academic advisor, and the thesis committee working with me will have access to the original copies of the completed survey tools. At the completion of the research, a copy of the study findings will be kept at the AGCHC office and will be available if you are interested in seeing the findings of this research.

As a participant in the study, you have the right to contact Julie Simpson, the Manager of Research Conduct & Compliance Services at the University of New Hampshire by calling (603) 862-2003 or by email at [Julie.Simpson@unh.edu](mailto:Julie.Simpson@unh.edu), with any concerns or questions about your involvement in this research.

I thank you for considering participating in this project. Whether you decide to complete the survey or not, she hopes you and your newborn the best of health and urges you to seek information from your care provider about postpartum depression.

Please place completed surveys in the box at the registration desk, marked Health Surveys, prior to leaving the office today.

Sincerely,

Alyssa J. Abraham, BS, RN, Primary Investigator

## APPENDIX B

### UNH IRB LETTER

#### University of New Hampshire

Research Conduct and Compliance Services, Office of Sponsored Research  
Service Building, 51 College Road, Durham, NH 03824-3585  
Fax: 603-862-3564

28-Nov-2007

Abraham, Alyssa  
Nursing, Hewitt Hall  
22 South Shore Road  
Salem, NH 03079

**IRB #:** 4122

**Study:** Correlating Health Locus of Control and Risk for Postpartum Depression

**Approval Date:** 21-Nov-2007

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects*. (This document is also available at <http://www.unh.edu/osr/compliance/irb.html>.) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed pink Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or [Julie.simpson@unh.edu](mailto:Julie.simpson@unh.edu). Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,



Julie F. Simpson  
Manager

cc: File  
Hamlin, Lynette



## APPENDIX C

### PERINATAL DIRECTOR LETTER



UNIVERSITY of NEW HAMPSHIRE

November 7, 2007

Office of Sponsored Research  
Research Conduct & Compliance Services  
Institutional Review Board  
University of New Hampshire

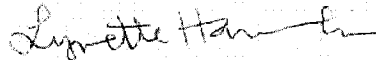
To Whom It May Concern:

I am writing this letter in support of Alyssa Abraham's research and request for IRB review.

I am Alyssa's project advisor and will be providing close supervision of her project. I am also the Perinatal Director at Avis Goodwin Community Health Center and am thus also supervising her project as preceptor at the agency. Her project is being conducted at the request of Avis Goodwin Community Health Center as a quality improvement initiative, with the intended outcome being an improvement of care that is provided to the pregnant population of patients served by Avis Goodwin who are at risk of developing postpartum depression.

Alyssa is a master's degree candidate in the Department of Nursing and is very capable of implementing and completing this project. I look forward to working with her on this valuable project.

Sincerely,



Lynette Hamlin, PhD, RN, CNM, FACNM  
Associate Professor and Chair  
Department of Nursing

Cc: Alyssa Abraham

SCHOOL OF HEALTH AND HUMAN SERVICES  
DEPARTMENT OF NURSING  
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