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The Relationships of Income, Predisposed Depression, and Marital Satisfactionto

Brian D. Dement

THE RELATIONSHIPS OF INCOME, PREDISPOSED DEPRESSION, AND MARITAL SATISFACTION TO POSTPARTUM DEPRESSION

Brian D. Dement, B.A.

An Abstract Presented to the Faculty of the Graduate School of Lindenwood University in Partial Fulfillment for the Degree of Master of Art

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Abstract

This study investigated the relationships of income, depression level and marital satisfaction, in the second trimester of pregnancy, to levels of depression approximately six months after childbirth. Data from thirty-eight women, completing self-report questionnaires that included the CES-D depression scales, were analyzed from within a larger survey of one hundred and fifty-one primiparous mothers. The investigation revealed that levels of depression prior to delivery and income were strongly correlated to levels of depression postpartum. The relationship between marital satisfaction and depression was inconclusive.

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Table of Contents

List of Tables

Chapter I

Introduction

It is estimated that seventy to eighty percent of all new mothers suffer from some degree of postpartum mood disorder (Kingston, 1999). In most cases, a "blue" period, which is typified by emotional lability and spells of crying, peaks around five days postpartum and then subsides (Dunnewold, 1997). In the extreme, puerperal psychosis, or major depression, will affect roughly 1 in 1000 mothers. Between the blues and psychosis lies postpartum depression, with a range of depressive symptomology including variable severity and prolongation (Albright, 1993). Postpartum depression effects ten to fifteen percent of all mothers but in many cases is undetected (Whitton & Appleby, 1996).

Although the term postnatal depression is usually taken to mean an onset within the first few months following childbirth, depressive episodes frequently extend beyond the first postnatal year. Research has shown postnatal depression to be both continually and intermittently present for up to six years following childbirth (Zajicek-Coleman, 1986). Symptoms are wide ranging and include anxiety over the baby, tearfulness, disturbed sleeping, rapid mood swings, irritability, despondency, anhedonia, poor concentration, fatigue, feelings of guilt, feelings of inadequacy, an inability to cope, and

suicidal thoughts (Mauthner, 1996). If left untreated, the disorder can have serious adverse effects on the mother, her relationships with significant others, and on the child's emotional and psychological development (Epperson, 1999). Additionally, people living with depressed individuals often bear considerable burden such as worrying about the relationship, finances and tense atmospheres at home while missing work, social opportunities, school and other outings (Dunnewold, 1997).

The extent of the problem posed by postnatal depression is made clear when one realizes that there are over 670,000 births per year in the United States alone. If 10% of these mothers suffer from postnatal depression, an estimated 67,000 new cases, and their families, will become affected by depressive symptoms each year.

The negative effects of fears and anxieties during pregnancy and upon labor and delivery have also been consistently documented (Lederman, 1984). Therefore, it is important to identify variables that influence psychological well-being among primiparous women. Identifying mothers who are likely to experience difficulty during this transition period is important in order to focus preventive efforts on the most vulnerable families (Dunnewold, 1997).

If postnatal depression is to be more readily treated, women themselves need to be more able to recognize its presence and more

prepared to seek treatment. Antenatal education is one way in which increased recognition could be achieved. Given that pregnant and postpartum women are reluctant to accept drug treatment for their symptoms, antenatal education may also improve women's understanding and acceptance of available treatments. Identifiable risk factors for increased risk of postpartum depression could increase the ability of health professionals and primiparous women alike in the process of understanding the factors contributing to the depressed mental states of many postpartum sufferers.

Numerous studies have suggested that certain factors can increase the risk of depression postpartum including biological changes due to pregnancy (Hopkins, Marcus & Campbell, 1984; Smith & Singh, 1992; Handley, Dunn, Waldron, and Baker, 1980; Harris, Lovett, Newcomb, Read, and Walker, 1994), inaccurate expectations for self and others (Dimitrovsky and Lev, 1998; Barnard & Martell, 1995; Coleman, Nelson & Sundre, 1999), social supports (Cutrona, 1984; Leung, 1985; Zacharia, 1994), socioeconomic standing (Gotlib, 1989; O'Hara, 1983; Hobfoll & Ritter, 1996; Gjerdinger & Chaloner, 1994; Whiffen, 1992), history of mental illness (Gjerdingen & Chaloner, 1994; Whiffen, 1992; Paykel, Emms, Fletcher, and Rassaby, 1980; Watson, Elliot, Rugg, and Brough, 1984) and perceived marital

satisfaction (Cox, 1999; Logsdon & Birkimer, 1997; Whiffen & Gotlib, 1993).

Oates (1994) and Boath and Pryce, (1994) have regarded the new status of perinatal psychiatry as a mental health sub-specialty based on the epidemiology, aetiology, treatment and outcome of the perinatal mood disorder. These researchers have continued to regard puerperal psychoses and the attendant specialist services as requiring specialist expertise. The impact of perinatal mental disorder on the relationships within the family and the developing infant create a basis for the discovery of pertinent factual information regarding the prenatal conditions which contribute to the onset of postpartum depressive conditions.

There is a long history of research on the transition to parenthood as a crisis for mothers, and the premise of much of that literature is that depressive symptoms are an inevitable consequence of the physical changes of pregnancy, childbirth and the changing roles motherhood demands (Handley, Dunn, Waldron and Baker, 1980; Kumar and Robson, 1984; Nelson, 1981). Recent research suggests, however, that certain other factors may contribute to the onset of postpartum depression (Bowlby, 1998; Gjerdingen and Chaloner, 1994; Robinson, Olmstead and Gardner, 1989). The purpose of the current study was to explore the relationships of three of these factors,

economics, a history of or preexisting depression, and perceived marriage quality, with levels of depression in a longitudinal study involving first-time mothers. Findings from this study may contribute to further knowledge of predictive factors used to identify at-risk women and encourage early education and preventive measures for women at risk of depression postpartum.

Chapter II

Review of Related Literature

Numerous studies have directed their attention toward independent pre-existing conditions thought to increase the risks of depressive episodes postpartum. Several divisions of study have dominated postpartum depression research in recent years: Biological change, inaccurate role expectations, levels of social support, socioeconomics, previous episodes of mental illness, and marital satisfaction encompass the preponderance of study within this domain.

Biological factors:

A very early medical model theory regarding the etiology of postpartum depression is that of hormonal change. Research has explored the profound hormonal and endocrinological changes of birth on postpartum emotional disorders. Hopkins, Marcus & Campbell (1984) and Epperson (1999) suggest an indirect connection between biological changes and mood disorders. The considerable endocrinological changes in pregnancy in the hypothalamic-pituitary-adrenal axis may be influential (Smith & Singh, 1992). Handley, Dunn, Waldron, and Baker (1980) found disturbances in tryptophan levels or their regulation in women who were suffering from postpartum depression. Harris, Huckle and Thomas (1989) examined 147

postpartum mothers for levels of cortisol, estradiol, progesterone and prolactin. They discovered significant correlations between depression ratings and salivary progesterone and prolactin levels. In a follow-up study, Harris (1996) found a modest association between salivary progesterone levels and maternity blues. Steinburg (1995) reported that women from his study who developed depression at 36-38 weeks gestation had the highest levels of progesterone metabolites, and that 80% of these women went on to develop postpartum blues or depression. In a study of postpartum blues specifically, O'Hara, Schlechte, Lewis and Wright (1991) followed 182 women from the second trimester of pregnancy through postpartum week 9, assessing levels of progesterone, prolactin, estradiol, free and total estriol and total cortisol. They reported only weak support for the hormonal hypothesis that estrogen withdrawal is a cause of postpartum blues, but no support for the role of any of the other hormones they studied.

There is, however, evidence that there is no measurable difference in hormone levels between depressed and non-depressed postpartum mothers (Albrite, 1993). Research comparing the hormonal changes in women who experience some postpartum mood disturbance, and women who do not, have been largely equivocal (O'Hara, Schlechte, Lewis and Wright, 1991). In spite of intensive research, there is little evidence that these hormonal changes

themselves are associated with mood change, but an alternative view is that hormonal profiles in affected women are within normal limits, and that those normal peripartum changes trigger other pathological mechanisms, at a neurotransmitter or receptor level, resulting in mood disorders (Harris, 1996).

Biological and physiological factors are clearly at play during the postpartum period. To what extent and in what way they contribute to postpartum depression is of some dispute and not clearly understood at this time. The negative posture of pregnant and nursing mothers concerning medications that may affect the baby suggest a need for early education and preventive measures for women at risk of postpartum depression rather than medical research seeking to mask or limit symptoms through unwanted or mistrusted medications.

Psychological Factors: Multiple Roles

According to Barnard and Martell (1995), a woman's ability to visualize herself as a mother plays a central role in the psychological preparation for parenting. Adjusting emotionally to the birth of a child is a cumbersome task requiring a woman to incorporate a role of mother into her personal identity and sense of self (Coleman, Nelson & Sundre, 1999). As a woman awaits the birth of her first child and then begins to mother her newborn child, she is faced with the task of integrating the new roles of motherhood into her identity

(Dimitrovsky & Lev, 1998). This role transformation, according to Blumberg (1980) alters maternal psychological well-being and can instigate adverse effects in women encountering difficulties in adapting to the demands of early parenting. Expectations for this phase of life play a role, as women struggle to meet what may be an unrealistic, idealized standard of a mother, who nurtures selflessly, is always in control, loves unconditionally, effortlessly manages a house, children, a full-time job, and meets the demands of her partner (Dunnewold, 1997). As women come up against these expectations and find they cannot meet them, this reality may confound their feelings of distress, depression, anger, anxiety and guilt.

Maternal psychological well-being may be adversely affected in women encountering difficulties in adjusting to the demands of parenting. Numerous maternal, infant temperamental, and contextual variables can potentially impact the ease with which women are able to achieve successful role attainment (Coleman, Nelson, & Sundre, 1999). According to Barnard and Martell (1995), a woman's capacity to visualize herself as a mother plays a central role in her maternal psychological preparation for parenting. Wells and Hobfoll (1999) studied maternal expectations regarding infant motor development among women who subsequently developed postpartum depression.

Their results indicated a statistical difference between depressed and non-depressed women in terms of role expectations.

The combination of employment and family responsibility may be particularly stressful, especially for women with small children. These multiple roles and the accompanying loss of recourse due to pregnancy are seen by Wells and Hobfoll (1999) as significantly related to greater postpartum depressive mood and anger. A study by Boath and Pryce (1994) suggested that unfulfilled parental expectations regarding child's sex had detrimental effects on subsequent parental attitudes and behaviors.

Women who were depressed postpartum were more likely to perceive as negative the care they received during childhood suggesting confusion of roles established through care versus caregiver ideation. Paykel, Emms, Fletcher and Rassaby (1980) suggested that women who had been separated from either parent, through death or divorce, were more vulnerable to depression as a matter of parental role confusion.

The literature indicates that role perceptions may play a significant part in the decisions related to family income, and thus, anxiety, anger, distress and depression. In a study of 151 primiparous women, Minor (1995) suggested that it is likely that many women based their decision to return to work, or not, on their perceived role as

co-provider of family income. Women whose own-to-partner's income ratio was low, regardless of actual dollar amount, were less likely to return to work, suggesting that they saw themselves less in the role of family income co-provider and more in the role of mother (Minor, 1995).

Social Support Systems:

One study of the effects of the patterns of maternity care on the emotional needs of mothers compared the influence of maternity care factors and their imminent bearing on emotional states of new mothers to "loading the dice" (O'Hara, Neumber, & Zakoski, 1984). The way a person reacts to stress and change is the interaction between that person's internal needs, the amount of stress that is being experienced, and the quality of supportive environment. The researchers stated that although coping response is mainly determined by the individual's personality, and by her physiological and social characteristics, the intervention of care-givers may "load the dice" and lead to an outcome which is either better or worse than might have been expected. Multiple regressions from the study produced a list of five factors associated with differing levels of emotional well being, six weeks after the birth of the child. Two of the five listed factors included "perception of family support after six weeks" and "perception of family support when mother first returns home with

the baby." The remaining factors included mother's self confidence, mother's rating of her baby's progress and mother's self image in feeding her baby.

Cutrona (1984) studied support and stress during the transition to parenthood and found two groups of women most vulnerable to postpartum depression: women who lacked someone upon whom they could rely for help in any circumstance, and women who did not feel themselves part of a social group. Numerous additional studies have demonstrated evidence for social support systems, or lack thereof, as reliable predictors of postpartum depression. Leung (1985) reported that women who received support from their families were less depressed and anxious than women who did not receive such support. Zachariah (1994) found the earliest and original attachment with a woman's mother, and the intimate attachment relationship she develops with her husband during adulthood were significant predictors of psychosocial well-being of the woman during pregnancy. Hobfoll and Walfisch (1984) theorized that in order for people to enhance the ability to cope during times of stress, it is important to have available a variety of resources which include a number of individuals within a social network who can provide social support. Ties to one's immediate family may be more crucial and salient when the spouse and children are the central focus,

while peers may be more important to adolescents, young unmarried adults and the elderly (Schulman, 1975). O'Hara, Rehm and Campbell (1983) found that social support provided by spouse appeared to be especially important as a function of depression rates among postpartum women, and Barbee and Duck (1990) have theorized that the biggest need for support comes in the areas of day-to-day concerns and needing help carrying out routine activities due to the physical constraints of a recent childbirth.

Economic standing

Research regarding the relationships of demographics to postpartum depression has been mixed. A large-scale study by Gjerdingen and Chaloner (1994) identified two demographic variables, age and employment status, as significant predictors of postpartum depression, citing that unemployment and youth played significant roles in postpartum depression levels. Psychologic stressors consistently associated with postpartum depression include lack of personal support and unemployment (Walling, 1998). Many mothers blame their depression on social or economic problems. They refer to their disadvantaged circumstances such as difficulties with housing, employment and money as playing a prominent part in the onset of their depression (Whitton and Appleby, 1996). In a study of 1,033 primiparous women, Campbell, Cohn, Meyers, Ross, and Flanagan

(1981), found postpartum distress was related to lower educational level and lesser parental occupational level.

In a study of 192 inner city women, Hobfoll & Ritter (1996) found that 42% of the surveyed women had the symptoms of major or minor depression at some time before delivery. Education, employment and family income were negatively correlated with depression at numerous stages of pregnancy and in particular during the first trimester, while differences in age, number of children and race were not correlated with depression at any time.

History of mental illness

The importance of making the distinction between the onset of depression before pregnancy, during pregnancy or after delivery has been addressed in numerous studies. Women's psychiatric history has been found to be predictive of postpartum depression (Gjerdingen & Chaloner, 1994; Whiffen, 1992; Paykel, Emms, Fletcher and Rassaby 1980). Others have identified either personal or family history as predictive of postpartum distress (Watson, Elliot, Rugg, and Brough, 1984). O'Hara, Schlechte, Lewis, & Wright (1991) found the number of previous episodes of depression to be a significant predictor of depression diagnosis and depression symptom levels in their childbearing samples. Similarly, Gotlib (1991) reports that having

symptoms of anxiety or depression during pregnancy is predictive of postpartum depression.

These studies suggest a certainty regarding the history of depressive symptoms and yet are only slightly better than inconclusive when the results are applied to the total number of cases of depression after birth. These studies suggest that among subjects with known mental illness prior to pregnancy, a substantial percentage demonstrate postpartum depression symptoms; however, in a study of 192 inner city women, these findings were challenged (Hobfoll, Ritter, Lavin, Hulksizer, & Cameron, 1995). In this study, forty-two percent of subjects reported symptoms of major or minor depression at some time before delivery. Twenty-eight percent reported symptoms during the first or second trimester and only fourteen percent prior to pregnancy. Two months after the birth of the baby, twenty-four percent of the subjects reported postpartum depressive symptoms; however, only twelve percent of these women had reported continuing effects or symptoms of depression reported in previous interviews.

In an earlier study, O'Hara, Rehm, and Campbell (1983) attempted to compare symptomology throughout the period of second trimester through six months postpartum and found depressive symptoms highest during the second trimester and decreased thereafter. It seems some depression may be current manifestations of

previously existing depression while others are new onsets (Albright, 1993). Green (1996) suggests that the majority of studies have only recruited subjects postnatally, thus failing to observe that some women were already unhappy. Other studies support the concept of pregnancy as a period in which women are at significantly greater risk of experiencing severe emotional disequilibrium and suggest that as many as twenty-five percent of mothers who appeared mentally healthy in the first trimester demonstrated depressive symptoms postpartum (Affonso, 1992; Zajicek & Wolkand, 1978; Tilden, 1981).

This literature indicates that empirical data conflict regarding the prevalence as well as levels of depression. Caution should be resolute when attempting to discriminate between previous symptoms of disequilibrium and certain mental distress or illness. The literature suggests with some degree of confidence that previous episodes of confirmed mental illness may be a useful predictive factor, but one without definitive certainty, suggesting that additional factors may play significant roles in depressed states after the birth of a child.

Marital relationship

In comparison to unmarried persons, married people have consistently been found to have lower rates of treatment for mental illness, higher rates of psychological well-being, substantially lower mortality rates, and lower rates of institutionalization than unmarried

persons (Westbrook, 1978). It is known that if the marital relationship is positive, then individual well-being is enhanced, and if the marital interaction is negative, then individuals may be detrimentally affected (Westbrook, 1978). Depression is found to be correlated with marital problems (Whiffen and Gotlib, 1993), marital instability (Kumar and Robson, 1978), low or poor marital adjustment (Whiffen, 1988), and deterioration in the marital relationship (Mauthner, 1997). Hence, it is not surprising that one factor that many researchers agree is strongly associated with postnatal depression is the quality of the mother's relationship with her male partner.

Bowlby (1988) identified marriage, childbearing and parenting as examples of life events that arouse intense affectionate attachments and emotional relationships, and expose a woman to a greater risk of depression when emotional needs are unmet. Scarf (1980) suggested that women during childbearing invest themselves powerfully in emotional ties with others and are thus more vulnerable to experiencing loss, a sense of not being loved, or not feeling important when their interpersonal relationships are being disrupted.

Boath & Price (1994) studied the impact of postnatal depression on sixty families. Adverse effects on the marriage were reported by 62% of surveyed participants, with significant relationships reported between postpartum depression, the marital

relationship and partner's mental health. Zachariah (1994) found that husband-wife attachment was a highly significant predictor of a mother's psychological well-being and confirmed that close and intimate attachment to husband has a very significant influence on the psychological well-being of women during pregnancy in a study of 115 pregnant women

Several longitudinal studies have tracked marital satisfaction, from before the birth of a child through varying periods after the birth, demonstrating overall linear declines (Cox, 1995; Logsdon and Birkimer, 1997).

Westbrook (1978) reported that husband-wife relationships demonstrated positive correlations with women's calmer physiological states, maternal warmth, and positive attitudes toward childbearing in a study of differing marital relationships in Great Britain.

Logsdon & Birkimer (1997) reported on the effects of ten life situations, including levels of perceived social support, satisfaction with support received, closeness to husband, and closeness to baby, in a study of fifty married women. Their results confirmed that among childbearing women, the spouse is frequently cited as the most important source of support and that when support from spouse is lacking, severe consequences can occur. Similarly, O'Hara, Rehm and

Campbell (1983) found support from spouse to be especially important and negatively correlated with depressed mood of mother.

The marital relationship is identified by Mauthner (1996) as the most important relationship in the lives of postpartum women. Combined bodies of important research have conclusively indicated that women with postnatal depression tend to have poor relationships with their male partners; however, equating a poor relationship with a partner who is unwilling to support is too simplistic an analysis (Mauthner, 1997). Mauthner (1996) assessed the marital relationships of 18 primiparous women and their perceived roles associated with childbirth and the implications on postnatal depression. She reported a reciprocal relationship between postnatal depression and the marital relationship, suggesting that, while some male partners were clearly un-supportive, the women were also actively involved in the process of emotional non-support, often discouraging their partners from helping or supporting them. She suggests that depression can lead to withdrawal, and that withdrawal can lead to depression.

These results suggest that childbearing women and their spouse complete a dyad frequently cited as the most important source of support during prenatal and postnatal periods. When this support is lacking, the depressed mood of mother is often cited as a prominent effect.

Identifying risk factors associated with increased risk of postpartum depression has been the purpose of numerous studies in recent years.

Studies based on biological change, role adjustments and social supports, comprise three of the six largest areas of current research. The three remaining areas of immense research within the domain of postpartum depression risk factors are the subject of the current study: economic standing, previous episodes of mental illness and marital satisfaction. Studies attempting to focus on economic standing have varied while marital satisfaction and historical mental illness have repeatedly demonstrated positive relationships with postpartum depression. The current study attempted to compare specific levels of postpartum depression within each of these three areas of study. This study hypothesized that relationships based on varying levels of income, previous mental illness and marital satisfaction with varying levels of postpartum depression, could assist in the clarification of definitive measures denoting the risk of postpartum depression in mothers-to-be.

Chapter III

Methodology

Participants

Specific data for use within the current study were selected from a larger study (Minor, 1995) regarding patterns of work after the birth of each subject's first child. The Minor (1995) study was designed as a short-term longitudinal study featuring two phases, before and after the birth of each child. One hundred and fifty-one (151) primiparous women participated in the first phase of the research (Time 1), and one hundred and six (106) respondents from the original sample participated in the second phase (Time 2) of the research. Of the respondents participating at Time 2, thirty-eight (38) completed a long version of the original survey, containing the CES-D depression scale employed within the current study.

Respondents for the larger study were recruited through childbirth preparation classes, fitness or exercise classes specifically held for pregnant women or through their doctor's offices or by referral. Several hospitals granted permission to recruit from childbirth classes. During these classes the researchers made short presentations about the project, asked for volunteers, then distributed

contact forms so that researchers could communicate with them in more detail at a later, more convenient, time.

Seventy-one percent of respondents from the larger study were recruited through childbirth classes. Recruiting through doctors' offices showed limited success and resulted in about fifteen percent of the original subjects' recruitment. Time constraints of the nursing staffs, and doctors' reluctance in participating in the recruitment process were reported deterrents. The remaining fourteen percent were referrals from participants or research team members. As an incentive to participate in the study, a chance to win $100.00 in a random drawing of participants was offered.

Participants of the study were recruited primarily from a sub-urban area of southern California, near Los Angeles. The thirty-eight subjects completing the long form of Time 2 surveys ranged in age from 15 to 41 years old, with an average (mean) age of 27.1. Husbands, or partners, of respondents were slightly older, with a mean age of 30.4 years. Partners' ages ranged from 17 to 34 years old. Most of these Time 2 respondents, who completed the long form of the survey, were Caucasian (84%). The six remaining subjects were evenly divided with two Asians, two African-Americans and two Hispanics (see Table 1).

Subjects reported a wide range of personal income averaging near $35,000. Spouse incomes also demonstrated a wide range with a mean average about twenty-five percent higher at about $50,000. Subject income and spouse income were combined in this study creating an additional demographic variable, Family Income (see Table 1).

TABLE 1: Demographic Variables

Demographic Variable	Respondent	Spouse/Partner	Family
Age:			
Mean	27.1	28.4	
SD	5.5	4.2	
Income:			
Mean	$30,000*	$50,000*	$80,000*
Race:			
Caucasian	36		
African-American	2		
Asian	2		
Hispanic	2		

* Estimate based on income ranges (see Appendix B)

Instruments

Items from the larger survey selected for analysis from Time 1 in the current study included two income questions, the Center for Epidemiological Studies- Depressed Mood Scale (CES-D) and a marital quality scale adapted from the "Spousal Support for Work and Parenting Scale. "

Income

Income was determined by simply asking respondents two questions. The first was: "What would you say your husband's/partner's income from all sources last year was?" (see Appendix B). The second question was: "What would you say your own income from all sources last year was?" (see Appendix B). Researchers then combined subject and spouse income variables to create a third variable, family income.

Depression

As a measure of depression, this study employed the Center for Epidemiological Studies- Depressed Mood Scale (CES-D; Radloff, 1977). The instrument is a 20 item self-report scale designed to measure depressive symptoms in the general population (see Appendix A). However, it has also been shown to be useful in clinical and psychiatric settings. The scale is very easily administered and scored and was found to be easy to use by respondents in both clinical

and general populations. The CES-D measures current level of depressive symptomatology with emphasis on the affective component—depressive mood. The CES-D items were selected from a pool of items from previously validated depression scales, from the literature and from factor analytic studies. The items reflect symptoms such as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of energy and sleep and appetite disturbances (Radloff & Terry, 1986). There are four subscales; Depressed Affect, Happy, Somatic and Interpersonal (Radloff, 1977). Items on the Happy subscale are reversed to reflect "unhappy" scores. Respondents rate the frequency (over the past week) of 20 symptoms (ranging from rarely or none of the time to most or all of the time). A total score is calculated by summing scores of all items. Levels of depression then are based on the summed scores, which can range from 0 to 60. Higher scores reflect increased levels of depression.

Extensive research on the CES-D involved 3,574 Caucasian respondents of both sexes from the general population plus a retest involving 1422 respondents (Radloff, 1977). In addition, 105 psychiatric patients of both sexes were involved in clinical studies. An additional unspecified number of African-American respondents from the general population were involved in the testing. Means for the general population of white respondents ranged from 7.94 to 9.25. The

mean for 70 psychiatric patients was 24.42. All results regarding reliability and validity were reported as being confirmed for subgroups: African-American, whites, males, females and three levels of education (Radloff, 1977).

Acceptable reliability and validity have been found across a wide variety of demographic characteristics, including age, education, geographic area, and racial, ethnic and language groups (Radloff, 1977, 1991; Radloff and Terry, 1986). The CES-D reports very good internal consistency with alphas of roughly .85 for the general population and .90 for the psychiatric population. Split-half and Spearman-Brown reliability coefficients ranged from .77 to .92. The CES-D has fair stability with test-retest correlations that ranged from .51 to .67 (tested over two to eight weeks) and .32 to .54 (tested over three months to one year).

The CES-D has excellent concurrent validity, correlating significantly with a number of other depression and mood scales. The CES-D also has good known groups validity, discriminating well between psychiatric in-patients and the general population, and moderately among levels of severity within patient groups (Radloff, 1977).

The CES-D also discriminated between people in the general population who state, "they need help" and those who did not, and it

was shown to be sensitive to change in psychiatric patients' status after treatment (Radloff, 1977).

Marital quality

Marital quality was measured by asking respondents to indicate their agreement with six statements adapted from the "Spousal Support for Work and Parenting Scale" (Greenberger, Goldberg, and Hamill, 1995). The Spousal Support for Work and Parenting Scale instrument is a 27 item self-report scale designed to measure perceived emotional and instrumental support for respondent's work and parenting activities. The instrument is scored by summing the individual scores of all questions. A low total score indicates low level of satisfaction and as scores increase a corresponding level of satisfaction is indicated. Scores can range from 27 to 108. The scale was designed so that separating questions 1-15, for spousal support for work, and 16-27 for spousal support for parenting could create two subscales. Coefficient alpha for the scale measured .93 for married men, .92 for married women. For the support for work subscale, coefficient alphas were .88 for married men and .88 for married women. For the support for parenting subscale, coefficient alphas were .87 for married men and .89 for married women (Greenberger, Goldberg, and Hamill, 1995).

The items employed within the Minor study were selected from the pool of Spousal Support for Work and Parenting Scale items previously validated in tests using married men and women who already had children. The Minor study was restricted to primiparous mothers, thus questions applicable to men, or mothers who already had children were excluded from the questionnaire resulting in six items being utilized in the study. In addition, the Minor study extended the Likert type scale range from 1-4 to 1-5 by inserting a non-committal center point. These changes may have accounted for a portion of the discrepancy between the expected summed scores of the adapted scale and the original full-length scale.

Procedure

Respondents who were successfully recruited for the study were asked for an appointment time, usually in their homes, during which a research team member conducted a brief interview and delivered a questionnaire for respondents to complete. The researcher returned, later the same day, to retrieve the completed questionnaire. Average completion time for the survey was seventy-five minutes. About six months after the delivery of their babies, respondents were contacted for the second phase of data collection. The data collection procedure for Time 2 involved calling respondents to notify them of the second phase of research, verifying their addresses, and

conducting a brief telephone interview, mainly to ask whether they were working outside the home or were homemakers.

Once the telephone interview was completed, a seventeen-page, long version of the Time 2 questionnaire was mailed to the subjects. Many respondents reported difficulty understanding and completing a time diary, and in finding time to complete the follow-up questionnaire. Because this was contributing to a low Time 2 response rate, the questionnaire was shortened to four pages. In all, thirty-eight respondents completed the longer version of the Time 2 instrument, eighty-two completed the revised Time 2 instrument and eleven respondents participated in the telephone interview but failed to return the completed Time 2 questionnaires. The current study, then, was limited to the 38 respondents who completed the longer Time 2 version of the survey.

Chapter IV

Results

Descriptive statistics for the variables CES-D at Time 1, CES-D at Time 2, marital satisfaction and income are presented in Table 2.

TABLE 2: Means, Standard Deviations and Ranges of Variables

	Mean	Std. Div.	Range
CES-D (Time 1)	21.44	6.47	29.0
CES-D (Time 2)	22.89	7.85	48.0
Marital Satisfaction	18.27	2.21	13.0
Income Level:			
Respondent	$30,000*		
Spouse/Partner	$50,000*		
Family	$85,000*		

* Estimate based on income levels (see Appendix B)

The purpose of the current study was to examine relationships between levels of depression after the birth of a child with income levels, depression before the birth of a child, and marital satisfaction. Three hypotheses, then, are investigated within the current study:

1) A negative relationship exists between levels of family income and levels of depression postpartum.

2) A positive relationship exists between level of depression, in mothers, before and after childbirth.

3) A negative relationship exists between an expectant mother's perception of marital satisfaction and her level of depression postpartum.

The device most widely used by behavioral scientists to discover and summarize relationships between variables is the linear correlation coefficient, specifically, the Pearson r. The Pearson r is a measure of the strength and direction of linear associations between two variables.

The Pearson r assumes that a linear relationship exists between variables. A linear correlation coefficient is an index of the strength of association between variables X and Y to the extent that Y values are a straight-line function of X. This study proposes that directional linear relationships exist between income and depression, depression at Time 1 and depression at Time 2, and marriage satisfaction and depression.

Pearson correlations computed between each of the three income variables and Time 2 depression scores demonstrated significant relationships. Table 3 reflects these correlations.

Table 3: Pearson Correlations

	1	2	3	4	5	6
1. CESD Time 1		.756**	-.267	-.441**	-.463**	-.728**
2. CESD Time 2			-.116	-.326*	-.349*	-.575**
3. Marital Satisfaction				.280	.438**	.482**
4. Respondent Income					.136	.644**
5. Spouse Income						.809**
6. Family Income						

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

The strongest of these relationships was established between the combined family income variable created by researchers and Time 2 depression scores (r= -.575, p= 0.000), followed by partner's income and Time 2 depression (r= -.349, p= 0.037), and Time 2 depression and the respondent's own income (r= -.326, p= 0.049). Pearson correlates between Time 1 and Time 2 CES-D scores demonstrated the strongest relationship within this study (r= .756, p= 0.000). Results from analysis of the marital satisfaction sub-scale proved to be disappointing. Time 2

CES-D scores showed no clear relationship with marital satisfaction ($r=-.116$, $p= .110$) within this study.

Chapter V

Discussion

The results of this study supported the hypothesis that a positive relationship exists between levels of depression prior to delivery and postpartum levels of depression. These results concurred with the findings of numerous clinicians and researchers who have documented symptoms of emotional disequilibrium, heightened anxiety, ambivalence, introversion, depression and mood disturbances during pregnancy (Affonso, 1992; Colman & Colman, 1973; Leifer, 1980; Standly, Soule & Copans, 1979; Ballou, 1978). Zajicek & Wolkind (1978) reported evidence of pronounced emotional disequilibrium in women during pregnancy. They reported that only 25% of their first trimester subjects were identified as mentally healthy and that 81% of those reported to be psychologically stressed experienced some kind of disabling emotional difficulty. Subjects in this study scored well above levels normed for the general public; however the consistency across Times 1 and 2 suggest, as Green (1996) reported, valuable information is being wasted by dichotomizing on the basis of postnatal depression.

Affonso (1992) proposed that the mood and affective changes that occur during childbearing are maternal responses to the complex psychosocial transitions and concomitant psychosocial changes inherent in gestation. Results support, at least in principle, the idea

that the changes in pregnancy are a distinct contributor to levels of depression in perinatal mothers as well as postnatally. It should be expected, then, that those without prior experience, first-time mothers, would experience the greatest discomfort and thus score higher than would mothers with prior children.

The current study was but a minute segment of the original study by Minor (1995). The original study, as reported, took around seventy-five minutes to complete. The placement of the CES-D on page nineteen of thirty-three may have led to inaccurate responses to the questions due to negative effects of the tediousness of the long survey. Frequencies of answers chosen demonstrated that few subjects chose to answer any of the twenty questions with a "rarely or none of the time" response (which would count as zero points when scoring). The preferred response to most questions from the scale was "Some or a little of the time". This response was scored as one point and would total twenty if all responses were rated as such. A score of twenty, just one point fewer than this study averaged, would represent more than double the 7.94 to 9.25 average score reflected in the norms for the general population established by Radloff (1977) and only slightly below the norms established for psychiatric patients (Radloff, 1997). When the uncertainty of the psychosocial changes required by the birth of a first child are combined with the attitude

one might expect of subjects when completing a long and serious survey, it is not surprising that the results are at levels well above the stated norms of the general population. However, there is considerable debate (Whiffen, 1992) as to whether postnatal depression is any different from depression experienced at any other time.

Findings within the current study demonstrate concurrence between Time 1 and Time 2 CES-D scores suggesting that depressed states, in the second trimester, are similar to those at six months postpartum and support this study's hypothesis that a positive relationship between perinatal and postnatal depression exists. It follows, then, and is in agreement with Whiffen (1992) and Green (1996) that a weakness of the majority of studies is that they recruited subjects postnatally, which then served to overlook the possibility that some women were already unhappy before delivery and hence failed to observe prenatal indications of depression.

It may be argued that the prevalence of extreme CES-D scores, at Time 1, is representative of a subject's personal history and even family predisposition to depressed states. The importance of this finding becomes apparent when one considers that implications for treatment suggest that if the antenatal period is an especially risky time for expectant mothers, early testing and awareness should be

stressed in educational settings for health care professionals as well as mothers to be.

Numerous studies have emphasized the importance of husband-wife relationship during different stages of pregnancy and child birth and child bearing outcomes, including psychological well being of women during and following pregnancy (Arizmendi & Affonso, 1984; Westbrook, 1978; Scarf, 1980; Mercer, 1986; Zachariah, 1994). A comparable outcome was expected within this study. The sub-scale adapted from the Spousal Support for Work and Parenting Scale, however, did not demonstrate the expected negative relationship between spousal support and postpartum depression levels. There is a possibility that the changes to the scale, for adaptation to primiparous mothers, played a significant role in the outcome of this study. The larger, or complete, scale may have demonstrated a substantially different set of results; however, the scale was not seen as an intricate piece of the larger study, thus its merits for use at that time were not fully investigated.

While spousal support was not significantly associated with depression, it was interesting to note a strong correlation between levels of family income and spousal support ($r = .482$, $p = 0.003$), and between spousal support and spouse/partner income ($r = .438$, $p = 0.008$). Family income and Time 1 depression levels also demonstrated

a very strong association (r= .728, p= 0.000). The relationships of Time 1 depression levels and income were not specifically a part of this study in that each was expected to correlate independently with Time 2 depression rates without regard to their associations with each other at Time 1.

Income was expected to demonstrate a negative relationship with depression levels at Time 2. This hypothesis was supported within this study. The larger study, from which this study evolved, was specifically designed to include subjects who, by their socioeconomic standing, would be able to make choices about their work status, after the birth of their baby, without the burden of absolute economic need. The sample, then, was one of convenience, which may have played an important role in the outcome of this study and specifically within the domains of income in this study as well as the larger study. Based on the monetary affluence of many of the subjects (mean family income was about $80,000), it was expected in this study that income would play a lesser role in the psychological well being than marital quality or history of depressive states. In the current study, however, it may have played the most significant role. The larger study explored the work patterns of primiparous mothers, expecting to demonstrate a relationship between traditional personal values regarding children and work status after the birth of their child.

Interestingly, the Minor (1995) study did not demonstrate significant findings with respect to that relationship, but did report a very strong relationship between working status and the ratio of mother's income to spouse/partner's income. Minor suggested that the role of co-provider is influenced by this ratio, and particularly during the transition to parenthood. The finding within this study that depression levels are related to income, and specifically spouse/partner income, indicate agreement with Minor's belief that when spouse/partner's income is well above the mother's income, this may increase her desire to give added weight to her new role as mother above that of partial income provider thus increasing her ability to adjust her self-esteem based on her position within societal hierarchies. The relationship between depression levels and each of the three income variables, in this study, demonstrated stronger correlations at Time 1 than at Time 2 (see Table 3). This, in accordance with Minor's beliefs, suggests that as mothers adjust their roles within the family and society, during and after childbirth, personal levels of depression may decrease, based upon their own beliefs regarding hierarchic positions based on role identification.

A significant limitation of this study was the final number of subjects at Time 2 who had completed an original long version of the questionnaire. The length of the Time 2 survey prevented many of

the subjects from returning the survey at all. When the researchers made inquiries, it was found that a shorter survey was desired and researchers complied by deleting portions of the longer version and redistributing the shorter version to those who had yet to reply. The shorter version of the survey did not include the CES-D. Time 2 CES-D scores, then, were limited in number.

The sample distribution of levels of income and race may have biased this study. A disproportionate number of Caucasian women comprised the bulk of the sample and may not be representative of the general population. Minorities accounted for only 16% of respondents. Income levels proved to be significantly higher than the average American family generates at $38,885 per year (U.S. Census, 1994).

The foundation of this study was built on the expectation that certain variables may be useful in early detection of mothers, as well as their families, who will suffer from depressive symptoms postpartum. Predictability of depression could advance the abilities of the medical and counseling professionals when working with at-risk patients, through education and improved tools for early detection. If preventive measures can lead to alleviation of symptomologies, improved means of detection must become available to health care professionals.

This study supports the belief that income levels and prenatal depressive symptomology are related to postpartum depression levels. This researcher believes that the research in this study, and other related research, may help to increase the understanding of postpartum depression and issues related to its onset. By increasing the knowledge regarding variables that may serve to prompt early detection, the numbers of sufferers of this illness may be reduced in the future through early education of those at risk. Presentation of this information at prenatal birth classes, or within prenatal care facilities, may comprise useful means of addressing issues related to postpartum depression. Information regarding prenatal symptomology and demographic data shown to correlate with increased risk of postpartum depressive distress may lead to early interventions, diagnosis and alleviation of symptoms. Health care professionals may improve their ability to predict symptomology, and thus, recommend education or treatment to patients very early in pregnancy, or their ability to diagnose when confronted with symptoms identified as significant risk factors.

Appendix A

Marital Quality Survey Questions

Adapted from "Spousal Support for Work and Parenting Scale"

Thinking about how your relationship is right now, please indicate whether you agree or disagree with the following statements, using the scale below.

1	2	3	4	5
strongly disagree	somewhat disagree	neutral	somewhat agree	strongly agree

a. My spouse/partner listens to me when I need someone to talk to. ___

b. I can state my feelings without him getting defensive. ___

c. I often feel distant from my spouse/partner. ___

d. My spouse/partner can really understand my hurts and joys. ___

e. I feel neglected at times by my spouse/partner. ___

f. I sometimes feel lonely when we're together. ___

(in Minor, 1995)

Appendix B

Income Demographics Questions

3. What would you say your husband's or partner's income from all sources last year was?

___ No income
___ $7,000 to 14,999
___ $15,000 to 24,999
___ $25,000 to 34,999
___ $35,000 to 44,999
___ $45,000 to 54,999
___ $55,000 to 64,999
___ $65,000 to 74,999
___ $75,000 to 84,999
___ $85,000 to 99,999
___ $100,000 to 159,999
___ $150,000 to 200,000 or more

4. What would you say your own income from all sources last year was?

___ No income
___ $7,000 to 14,999
___ $15,000 to 24,999
___ $25,000 to 34,999
___ $35,000 to 44,999
___ $45,000 to 54,999
___ $55,000 to 64,999
___ $65,000 to 74,999
___ $75,000 to 84,999
___ $85,000 to 99,999
___ $100,000 to 159,999
___ $150,000 to 200,000 or more

(in Minor, 1995)

Appendix C

Center for Epidemiological Studies-Depressed Mood Scale (CES-D)

Using the scale below, indicate the number which best describes how often you felt or behaved this way – DURING THE PAST WEEK.

0 = Rarely or none of the time
1 = Some or a little of the time
2 = Occasionally or a moderate amount of the time
3 = Most or a lot of the time

DURING THE PAST WEEK:

___ 1. I was bothered by things that usually don't bother me.
___ 2. I did not feel like eating; my appetite was poor.
___ 3. I felt that I could not shake off the blues even with the help of my family or friends.
___ 4. I felt that I was just as good as other people.
___ 5. I had trouble keeping my mind on what I was doing.
___ 6. I felt depressed.
___ 7. I felt that everything I did was an effort.
___ 8. I felt hopeful about the future.
___ 9. I thought my life had been a failure.
___10. I felt fearful.
___11. My sleep was restless.
___12. I was happy.
___13. I talked less than usual.
___14. I felt lonely.
___15. People were unfriendly.
___16. I enjoyed life.
___17. I had crying spells.
___18. I felt sad.
___19. I felt that people disliked me.
___20. I could not get going.

(Radloff, 1977)

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