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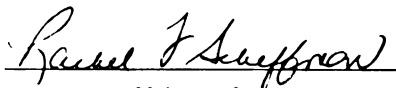
The Relationship of Social
Support and Depressive Symptomatology
During Pregnancy

presented by

Ellen F. Heit

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THE RELATIONSHIP OF SOCIAL SUPPORT
AND DEPRESSIVE SYMPTOMATOLOGY
DURING PREGNANCY

By

Ellen F. Heit

A THESIS

Submitted to
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ABSTRACT

THE RELATIONSHIP OF SOCIAL SUPPORT AND DEPRESSIVE SYMPTOMATOLOGY DURING PREGNANCY

By

Ellen F. Heit

Depression is a major health concern in the U.S. Depression has been identified with stressful life events, including pregnancy. The literature suggests that as many as 30% to 38% of pregnant women experience some degree of depressive symptomatology. Social support has been identified as a possible modifier of stressful life events and the negative responses to such events. Little research has been done to investigate the relationship of depressive symptomatology and degree of social support the pregnant woman perceives.

This study investigated: (1) the extent and severity of depressive symptomatology and (2) the relationship between depressive symptomatology during pregnancy and self-reported social support. Using secondary data analysis, responses from 124 of the original sample of 172 primarily low income women who completed the Center for Epidemiologic Studies Depression Scale and the Norbeck Social Support Questionnaire were analyzed.

Results of data analysis indicated that, in this sample, 70% of the women had some measure of depressive

symptomatology; 45% had moderate to severe depressive symptomatology, with 15% scoring in the severe depressive symptomatology range. In the areas of total functional social support and affect the women with the lowest depressive symptomatology scores had the highest perceived social support, while those with highest depressive symptomatology scores perceived the lowest level of social support. In social support areas of affirmation and aid, results followed the same trend as that found for total functional support but were not found to be significant.

The Advanced Practice Nurse (APN) may be able to use the results of this study in providing or encouraging social support for the pregnant client, with the intent of modifying or reducing depressive symptomatology during pregnancy.

Dedicated to Dan and Becky Clapp

ACKNOWLEDGEMENTS

Rachael F. Schiffman, PhD, RN, who provided the data used in this study and chaired the thesis committee; Kathleen Phelps, MD, who encouraged exploration of the topic; Cynthia Collier and Carol Navarro, for assistance in preparation of final product; and Craig R. Weisse, MD, who encouraged and supported with exceptional patience and good humor.

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The Relationship Between Social Support and Depressive Symptomatology During Pregnancy

Introduction

Background

Up to one in eight individuals may require treatment for depression during their lifetimes (U.S. Department of Health and Human Services, 1993). The U.S. Department of Health and Human Services (1993) lists several major risk factors for depression, among them female gender and stressful life events. It has been suggested that our present age be called an "age of melancholy" (Rabkin & Klein, 1987,). Given the fact that as many as 10% of Americans presently suffer from depressive disorders and that one of every four Americans will suffer from a significant depressive experience in the course of his or her lifetime (Rabkin & Klein, 1987), it is clear that this comment may be an accurate description.

Kizilay (1992) cites epidemiologic studies showing a prevalence rate of 13-20% of the general population in the U.S. having depressive symptoms, and noted a consistent increase in the percentage over the last 20 years. Depression is the most common psychiatric disorder in women (Kizilay, 1992). The lifetime risk of depression is 20-26% for women (Kizilay, 1992). Other studies suggest a range of 10-52% of women who experience depressive symptomatology (Affonso et al., 1992; Karl, 1991; Yates, 1987; Zuckerman, Amaro, Baucher, & Cabral, 1989). Zuckerman et al. (1989)

found that clinical depression during pregnancy ranged from 4-16%, with depressive symptoms occurring in as many as 30-38% of pregnant women, while Affonso et al. (1992) found that 50% of the over 200 pregnant women interviewed admitted to three or more depressive symptoms during the pregnancy.

Some of the symptoms of depression are very similar to those normally occurring during pregnancy (e.g. decreased energy, appetite changes, weight changes, sleep pattern changes) and are, therefore, often overlooked by healthcare providers. However, depression or depressive symptoms, including appetite changes, sleeplessness and loss of energy and interest, can have important clinical implications for the pregnant woman's health status. Researchers cite poor health behaviors secondary to depressive symptomatology, such as alcohol and drug use, as a factor in negative pregnancy outcomes (Zuckerman et al., 1989). Steer, Scholl, Hediger, and Fischer, (1992) suggest that depression may be related to poor pregnancy outcome by affecting hormonal levels during pregnancy. O'Hara, Schlewchte, Lewis, and Varner, (1991) found that depressed women had lower estradiol levels at 36 weeks gestation than non-depressed women. Decreased estradiol levels may be indicative of placenta dysfunction, which may in turn be associated with intrauterine growth retardation and preterm delivery.

Depression during pregnancy has also been questioned as a possible predictor of postpartum depression (Ugarriza,

1989). The severity and/or persistence of the symptoms of post partum depression can cause debilitating problems for the mother and are therefore of major concern to healthcare providers. Karl (1991) identified the behaviors of depressive symptomatology, including crying or feeling sad, anxiety or irritability, slowed speech and body movements, self-absorption, difficulty displaying emotions, sleep disturbances, headaches, and anorexia, and the episodic and unpredictable occurrence of these symptoms during the postpartum period, as "significantly negatively affecting maternal-infant interaction" (p.386) by decreasing the mother's availability to meet the infant's needs.

Social support, the support an individual receives from friends, family and providers of services has been found to act as a buffer during stressful situations and to have a positive influence on a woman's sense of well-being during pregnancy (Aaronson, 1989; Brown, 1986). Social support effects are not necessarily perceived as dramatically altering the impact of stressful life events, e.g. pregnancy, but rather as serving a more protective function by moderating the impact of stress and facilitating coping (Aaronson, 1989).

The advanced practice nurse (APN) in primary care is in an ideal position to both identify the symptoms of depression in the pregnant client and to provide intervention through provision of a supportive relationship and by assisting the client to access other sources of

social support, whether family, friends or prenatal support group. Early intervention to address the symptoms of depression and to enhance the support network may positively impact both the pregnancy experience and the pregnancy outcome. The APN is educated to approach the client in an holistic manner, which is essential for the identification of depressive symptomatology during a period in a woman's life, when such symptoms have often been viewed by providers of prenatal care as a normal part of pregnancy.

Statement of Problem

Several studies (Arizmendi & Affonso, 1984; Hock, Schirtzinger, Lutz, & Widaman, 1995; Laizner & Jeans, 1990; Steer et al., 1992; Zuckerman et al., 1989) have addressed the problem of depression or depressive symptomatology during pregnancy and the links to both poor pregnancy outcomes and postpartum depression. While the existence of the problem is becoming well documented, how to address the problem continues to be an issue for healthcare providers.

The purpose of this study was to determine the extent and severity of depressive symptomatology among a group of low income pregnant women and to determine the relationship between self-reported social support and depressive symptomatology among a group of low income pregnant women. The existing literature, while limited, does point to a positive relationship between high levels of social support and low levels of negative emotional states (Moore et al., 1991; O'Hara, 1986; Vilhjalmsson, 1993). This study focused

solely on the negative emotional state of depressive symptomatology and sought to provide data that the concept of social support has a relationship to depressive symptomatology.

The research questions were: (a) What is the extent of depressive symptomatology in a sample of low income women; (b) What is the severity of the depressive symptomatology in the sample; (c) What is the relationship between self-reported symptoms of depression and the self-reported description of social support for a sample of low income pregnant women?

Conceptual Definitions

Depressive Symptomatology

This study addressed depressive symptomatology rather than a major depressive episode, also referred to as clinical depression. The criteria for both are presented to assist the reader in adequately differentiating between the concepts. The criteria for a major depressive episode, as defined by the DSM-IV (American Psychiatric Association, 1994), is a combination of several symptoms, present during the same two week period and representing a change from previous functioning. Necessary components for a diagnosis of a major depressive episode are depressed mood (i.e. sad or empty feeling or tearfulness) and loss of interest or pleasure. There may also be weight and appetite changes, altered sleep patterns, diminished ability to concentrate,

feelings of guilt or worthlessness, observable agitation or psychomotor retardation, fatigue or loss of energy nearly everyday during the two week period, and recurrent thoughts of death or suicidal ideation (see Appendix A for Criteria for Major Depressive Episode). To meet the criteria for a diagnosis of a major depressive episode, the individual must have five or more of the symptoms present during the same two week period.

Depressive symptomatology was conceptualized as the presence of some or all of the six major symptom areas described by the American Psychiatric Association (1994), the Center for Epidemiologic Studies (Radloff, 1977) and Beck and Weishaar (1989). These areas include depressed mood, lack of pleasure in life, feelings of guilt or worthlessness, helplessness or hopelessness, psychomotor retardation, loss of appetite and sleep disturbance. To differentiate from a major depressive episode, the symptoms, particularly depressed mood or feeling that life is devoid of pleasure (Beck & Weishaar, 1989), must be present at some time during the past week by self report. Self-report of how subjects in the sample may have felt or behaved in the past week constituted the operational definition of depressive symptomatology for purposes of this study. Depressive symptomatology was differentiated from a major depressive episode primarily by number of symptoms and duration of symptoms. Depressive symptomatology in this study was defined similarly by the Center for Epidemiologic

Studies and Beck (Zich, Attkisson, & Greenfield, 1990) as the presence of any of the symptoms of depression being present during the past week. The criteria for a major depressive episode requires that symptoms be present for at least two weeks. The severity of depressive symptomatology was determined by the number of symptoms present and the amount of time during the past week that the subject experienced any of those symptoms. In contrast, the criteria for a major depressive episode must include the presence of specific symptoms and a specific number of additional symptoms (see Appendix A). The conceptual definition of depressive symptomatology in this study involves the affective component of a depressive episode, either depressed mood, loss of interest or pleasure, or both.

Social Support

Social Support is defined in the literature as perceived or received coping assistance (Vilhjalmsson, 1993) or stress buffering (Aaronson, 1989). Support is seen as being informational, psychological/emotional or material (Spencer, Thomas, & Morris, 1989). Social support may come from a variety of sources within an individual's social network, including spouse, family, friends, healthcare providers, clergy, counselors or a peer group of persons undergoing similar experiences (Norbeck & Anderson, 1989). For purposes of this study the conceptual definition of social support was consistent with Norbeck's, which comes

from Kahn, "interpersonal transactions that include one or more of the following: the expression of positive affect of one person toward another; the affirmation or endorsement of another person's behaviors, perceptions, or expressed views; the giving of symbolic (e.g. information or non-tangible aid such as problem solving) or material aid to another"

(Cronenwett, 1985; Norbeck, Lindsey, & Carrieri, 1981).

Kahn conceptualized a "convoy" of social support, in which each person can be thought of as moving through life surrounded by a group of other people to whom that person is related through the exchange of social support (Antonucci & Akiyama, 1987). Antonucci and Akiyama (1987) present the convoy model as persons having varying degrees of closeness to the focal person, with social relationships that help the focal person maintain well-being and cope with the stresses of life. The conceptual definition of social support for this study involved the study subject's perception of supportive interactions of affect, a demonstration of positive feelings or caring toward an individual; affirmation, a demonstration of approval of an individual's actions, beliefs or feelings; and aid, which may be material (money, labor, environmental modification), or symbolic (information, advice, direction, suggestion), provided to the focal person by a network of relationships. For purposes of this study only the support perceived by the subject as being given to or available to the subject from the social network was considered.

Conceptual Framework

The Roy Adaptation Model

The adaptation model of Callista Roy provided the framework for understanding the relationship of social support and the pregnant woman's depressive symptomatology. Roy's adaptation model is well suited to an examination of depressed mood in pregnant women. Roy conceptualizes the person as having four modes of adaptation: physiological needs, self-concept, role function and interdependence relations, all of which are involved in the pregnancy experience. The pregnant woman must adapt to the physiologic changes of the pregnancy, including hormonal changes and neurotransmitter alterations. Rapid physical changes are characteristic of pregnancy. Stressors to the self-concept mode during pregnancy include adjustment to energy level changes and altered body image. Role function is affected by the stress of impending motherhood and the expectant mother's concern regarding her ability to handle the new role. Even for multiparous women, adding another child to the family, whose needs and demands are unknown for nine months, can be a major stressor. In addition, the woman's role as a sexual being may be threatened as her body changes. She may experience fear that her spouse, or the father of her unborn child, will reject her as her body changes with the pregnancy. Interdependence needs change as the woman experiences the emotional roller coaster of pregnancy associated emotions. Laizner & Jeans (1990)

describe pregnancy as a "health and life change event that challenges the mother's adaptive capacity physically, psychologically, and socially" (p.192).

Roy proposes that each person receives and processes input from the environment, the world within and around each individual. This input is described by Roy as stimuli, with adaptation determined by the pooled effect of three classes of stimuli. The first class is focal, or the internal or external stimuli immediately confronting the person. In this study, pregnancy can be considered the focal stimulus. The second class, contextual stimuli, are all the internal and external stimuli evident in a given situation. In this study of primarily low income pregnant women, inadequate financial resources, poor housing conditions, lack of transportation, are all possible contextual stimuli. Residual stimuli, the third class in the Roy model, are influences the person may not even be aware of, stimuli which affect behavior but whose effects are not necessarily validated. In the case of this sample, depressive symptomatology prior to pregnancy, which may or may not have been acknowledged or addressed, would be residual stimuli. The focal, contextual and residual stimuli determine the range each individual has of coping. Roy terms the adaptation level as the changing point that represents the person's ability to respond positively, to adapt, to a given situation. By balancing the three classes of stimuli through interaction with the internal and external

environment, successful adaptation is achieved (Andrews & Roy, 1986). In this study, successful adaptation to the challenges of pregnancy and low income status is determined to be an absence of, or very low level of, depressive symptomatology. The severity of depressive symptomatology on the part of the pregnant woman constitutes the degree of maladaptive response.

While all four modes are affected by pregnancy, the emphasis of this study is on the interdependence mode. The interdependence mode focuses on the interactions related to the giving and receiving of love, respect and value (Andrews & Roy, 1986). Through social interaction of the interdependence mode, a person's need for affectional adequacy is met. Affectional adequacy, which underlies the interdependence mode, includes the person's need for affection, affirmation, approval, care, attention and belonging (Andrews & Roy, p.152) and is therefore well suited to this study's conceptual and operational definitions of social support. The focus of the interdependence mode is on the individual's relationships with the support system, including significant others.

The perception of social support, using the Roy adaptation model, can be conceptualized as affecting the four modes of adaptation, but is depicted in the model developed for this study (see Figure 1) as involving the interdependence mode of adaptation. Interpersonal interactions of expression of positive affect and

affirmation effect adaptation chiefly through the interdependence mode. Aid in the form of information and anticipatory guidance also impact all adaptive modes, but in this study the primary influence is on the interdependence mode. In the model for this study the four adaptive modes are presented, with the interdependence mode larger to demonstrate the focus of the study. Adapting the wheel model developed by Roy (Andrews & Roy, 1986), the circle represents the pregnant woman, composed of the four adaptive modes. The modes overlap within the woman, an holistic view of the pregnant woman with emphasis on the interdependence mode in this study. The circle of the woman is shown as a broken line, demonstrating the capacity for the woman to receive and be affected by stimuli and to perceive the support network within the woman's environment. The stressor of pregnancy as the focal stimulus, and low income as the contextual stimulus (Hock et al., 1995; Moore et al., 1991), with arrows from the stressors to the pregnant woman, indicate the impact of the stressors on the woman as a whole. Because these stressors are not inherent in the woman, they are placed in the model outside the circle representing the pregnant woman. This study measured the subject's perception of social support. This social support network is placed outside the circle, as part of the external environment. The continuum of depressive symptomatology, from no symptomatology (FREE) to severe symptomatology (SEVERE) and the response to stimuli

**Depressive Symptomatology During Pregnancy
Adaptation to Maladaptation**

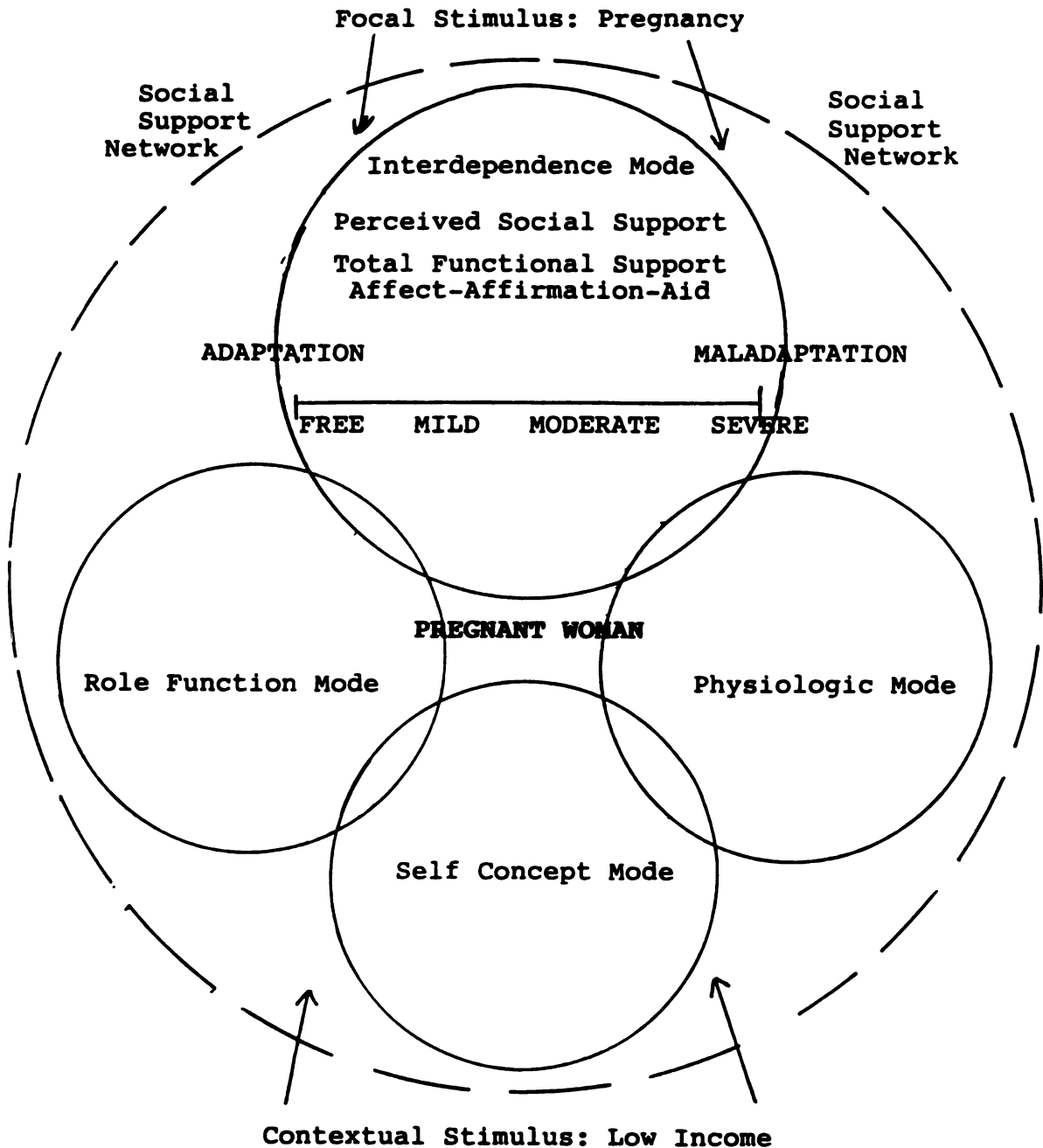


Figure 1

Adapted from Andrews and Roy (1986). Essentials of the Roy Adaptation Model.

(ADAPTATION to MALADAPTATION) are presented in the model within the interdependence mode (Figure 1).

Review of the Literature

The following is a review of the literature presented by issue addressed and the instruments used.

Depression During Pregnancy

The research questions of extent and severity of depressive symptomatology during pregnancy have been addressed by reseachers utilizing a variety of instruments. The Beck Depression Inventory (BDI) appears to have been used most frequently by researchers to measure depressive symptomatology (Arizmendi & Affonso, 1984). Steer et al. (1992) studied adverse health behaviors and negative pregnancy outcomes in a sample of 712 inner city and minority adolescents and adults, administering the BDI during pregnancy. This study used a cut score of 21 to indicate moderate depressive symptomatology, finding a mean score for the sample of 8.99, indicating only mild depressive symptomatology in this sample. Gotlib, Whiffen, Mount, Milne and Cordy (1989) used the BDI to measure depressive symptomatology during pregnancy, using a cut score of 10 to indicate mild to moderate symptoms. This study found 25.8% of their sample of 360 pregnant women met their criteria for mild to moderate depressive symptomatology. Ugarriza (1989), using the BDI and a cut score of 17 to indicate moderate to severe depressive symptomatology, found that 6.9% of the sample of 102

pregnant women met the criteria for depression. Gotlib, Whiffen, Wallace, and Mount (1991) used the BDI in a study of 730 pregnant women, found a mean score of 9.4, with 10.3% of the sample diagnosed with either a major or minor depression on further assessment. O'Heron (1991) studied 92 pregnant women for depressive symptomatology, also using the BDI. Using a cut score of 16 to indicate moderate depressive symptomatology, 20% of the sample were determined to be depressed. Huffman, Lamour, Bryan, and Pederson (1990) studied 62 pregnant women and 36 non-pregnant controls to test the BDI by cluster of items and the instruments applicability for evaluation in a pregnant population. The study found the mean score on the BDI for the pregnant group to be 7.04, while the control group had a mean score of 2.69.

The range of cut scores, from 10 to 21, used in these studies makes drawing conclusions from results very difficult. These studies each define depression differently, depressive symptomatology ranging from mild to severe based on cut score. Steer et al. (1992), Gotlib et al. (1991), and Huffman et al. (1990) present mean BDI scores for their samples below the cut score of 10, indicative of mild depressive symptomatology. Only Steer et al. specifically studied low income women.

Several other instruments have been used by researchers to assess depressive symptomatology during pregnancy. In their 1992 study of 81 pregnant hispanic women, Zayas and

Busch-Rossnagel used the Center for Epidemiological Studies-Depression Scale (CES-D) to assess for depressive symptomatology during pregnancy. With 49% of the subjects scoring higher than the generally accepted cut score of 16 (Radloff, 1977), indicative of moderate to severe depressive symptomatology, the extent and severity of depressive symptomatology in this sample points to the seriousness of this problem.

Kennerley and Gath (1989) and Martin, Brown, Goldberg, and Brockington (1989) used the Present State Examination to assess depressive symptomatology during pregnancy. Kennerly and Gath (1989) presented results in terms of the blues, while Martin et al. (1989) used the same instrument to provide information regarding diagnosable depression during pregnancy.

Appleby, Gregoire, Platz, Prince, and Kumar (1994) used the Edinburgh Postnatal Depression Scale pre- and postnatally and a screening questionnaire developed by the researchers for the study as a prenatal screening instrument. The National Institute of Mental Health Standardized Clinical Interview was used as a measure of clinical depression during pregnancy by Affonso, Lovett, Paul, and Sheptak (1990).

Each of the studies presented had a focus other than depressive symptomatology during pregnancy, primarily that of postpartum depression, although two studies (Appleby et al., 1994; Huffman et al., 1990) were designed to test

screening instruments for depressive symptomatology. The available literature regarding depressive symptomatology during pregnancy supports the importance of further study into the topic by providing data linking prenatal and postpartum depressive symptomatology (Gotlib et al., 1989, 1991; Huffman et al., 1990; Kennerley & Gath, 1989; Appleby et al., 1994; Martin et al., 1989; Laizner & Jeans, 1990). The link between depressive symptomatology during pregnancy and negative pregnancy outcomes (Steer et al., 1992), combined with the relationship between prenatal and postpartum depressive symptomatology strongly supports the importance of screening for depressive symptomatology during pregnancy by providers of prenatal care. The instruments to measure depressive symptomatology and the researchers' definitions for severity of depressive symptomatology vary widely, resulting in difficulty in generalizing results. Gotlib et al. (1989) used a cut score of 10 to indicate mild depression. Sample sizes are large enough, 62 to 730 pregnant women, to demonstrate reliability of conclusions, but not all the results are generalizable to a broader population due to specificity of samples, such as adolescents, psychiatric inpatients, or specific races. The studies are particularly problematic as support for the present study by the use of a variety of instruments and a range of cut scores to determine severity of depressive symptomatology, and only Steer et al. (1992) specifically studied low income pregnant women. There is a need to

establish a consistent definition for severity of depressive symptomatology if we are to better understand the problem of depressive symptomatology during pregnancy. Cut score to indicate presence of depressive symptomatology should be consistent in research, to avoid confusion and potential misinterpretation of results. These studies all have value for the current study by providing data to establish the problem of depression during pregnancy.

Social Support During Pregnancy

The literature regarding the impact of social support on the pregnant woman is fraught with a confusing array of conceptual and operational definitions of social support. While the relevance and significance of social relationships is the focus of the studies, the issues of definition and measurement instrument, make it difficult to draw general conclusions which can be readily validated.

Aaronson (1989) measured perceived social support with a modified version of the Personal Resources Questionnaire and received social support with a series of questions designed for the study regarding specific behaviors of the pregnant woman's family members. Cronenwett (1985) used the Social Network Inventory to measure social support, while Brown used the Support Behaviors Inventory in two separate 1986 studies. Collins, Dunkel-Schetter, Lobel, and Scrimshaw (1993) developed their own instrument for the measurement of social support during pregnancy. Spencer et al. (1989) chose to measure social support during pregnancy

by making the support of a lay worker available to the expectant mother and investigating acceptance of this support. Norbeck and Anderson, in two separate 1989 studies, used the NSSQ to measure social support during pregnancy, as did Koniak-Griffin (1988).

Each study presented different conceptual and operational definitions of social support and each used a different instrument to measure social support. Collins et al. (1993) and Spencer et al. (1989) developed their own measurement indices for social support, adding to the difficulty in both replicating the studies or drawing any comparisons from the existing literature. With different instruments used in each study, comparisons of results and generalizability is impractical. However, with the exception of Spencer et al. (1989), each of the studies cited found that social support, especially from the baby's father or from the expectant mother's family members, had a positive relationship to the pregnant woman's health behaviors or to positive pregnancy outcomes. Of the nine studies cited addressing social support during pregnancy, low income women made up the sample in only three studies (Collins et al., 1993; Norbeck & Anderson, 1989a, 1989b). Low income pregnant women are the focus of the current study, a group which received little attention in the literature presented. The apparent importance for the pregnant woman of social support found in the literature does support further research.

Depression and Social Support

Zuckerman et al.(1989) used the CES-D and NSSQ to study a total of 1014 primarily poor, pregnant women. The study findings indicated that the higher the depressive symptomatology score on the CES-D, the lower the perceived social support score on the NSSQ. The mean CES-D score for the sample was 18.6, above the generally accepted cut score of 16 for moderate to severe depressive symptomatology. This hallmark study presented the extent and severity of depressive symptomatology during pregnancy and a relationship between depressive symptomatology and perceived social support in a very large sample of primarily low income pregnant women. A strength of this study is that it is easily replicable for other sample populations of pregnant women.

Collins et al. (1993) assessed social support during pregnancy with an instrument developed for their study. Depressive symptomatology postpartum was assessed with the CES-D. Social support was found to be positively related to better birth outcomes and lower CES-D scores postpartum. Since multiple interviews were conducted prepartum to assess social support, the study would have been strengthened by an assessment of prepartum depressive symptomatology. This study lacks the replicability of Zuckerman et al. (1989) by the researchers' decision to utilize interviews to assess social support rather than an instrument with tested reliability and validity.

Sacco and Macleod (1990) used the Procidano and Heller Perceived Social Support from Family Scale to assess social support in a sample of 61 pregnant adolescents. The CES-D was utilized to measure depressive symptomatology during pregnancy. The findings include evidence that depression level is related to more negative interpersonal reactions, supporting the interpersonal process view of depression, which suggests that others react to depressed persons with conflicting affective, attitudinal and behavioral responses. While strengthened by the use of standardized instruments, the conclusions of the study are weakened by the small sample size.

Mercer and Ferketich (1988), using the CES-D and Barrera's Inventory of Socially Supportive Behaviors, with some additions to the social support instrument from an instrument developed by McMillan, studied a sample of 153 high risk pregnant women, 75 of their mates, 128 low risk pregnant women and 147 of their mates. The findings of the study were that the lack of perceived support by pregnant women was a significant predictor of depression during pregnancy. There was also a correlation between network size and perceived support, suggesting that larger networks contribute to the woman's perception of greater available support. The findings of this study, that perception of a high level of social support was related to lower depressive symptomatology scores, were similar to those of Zuckerman et al. (1989).

Turner, Grindstaff, and Phillips (1990) also used the CES-D to measure depressive symptomatology in a sample of 268 pregnant teenagers. Social support was assessed using the Provisions of Social Relations Scale to measure support from family and friends, with five new items developed to assess support from the father of the baby. The results indicated that subjects living with parents had significantly lower CES-D scores than those living in other situations. "Family support was by far the most powerful predictor of depression among adolescent mothers" (p.51). These findings, from an adequately large sample, are an extension of the findings of Zuckerman et al. (1989), more specifically defining the part of the social network correlated with depressive symptomatology.

The BDI was used by Cutrona (1989) to measure depressive symptomatology in a sample of 115 pregnant adolescents. Perceived social support was measured by the Social Provisions Scale, completed by both the pregnant adolescent and a person close to the adolescent. Results were similar to those of Zuckerman et al. (1989), with lower depressive symptomatology scores being correlated with higher scores on the measure of social support. In addition, results suggested that even when social support is evaluated by an external source, this correlation between social support and depressive symptomatology remains.

In a study of factors involved in the onset of and recovery from postpartum depression, Gotlib et al. (1991)

used the BDI to measure depression during pregnancy in a sample of 730 women. The Dyadic Adjustment Scale was used to measure social support from the marital relationship, the only part of social support network examined in this study. Of the women who were depressed postpartum, the mean score on the BDI prepartum was 3.4 points higher than that of their non-depressed counterparts, while the mean score prepartum on the measure of social support from the marital relationship was 8.7 points lower. The women diagnosed as depressed postpartum reported higher levels of depressive symptomatology during pregnancy, reported lower marital satisfaction. More negative perceptions of caring from their own parents, were found in the depressed group on postpartum interview. The correlation between higher depressive symptomatology scores and lower social support scores agreed with the findings of Zuckerman et al. (1989). However, only social support from the marital relationship was measured prenatally in this study, providing less information regarding the relationship of social support and depressive symptomatology and social support than the Zuckerman study. Findings have no generalizability to single mothers, a group to which the Zuckerman study can be related.

O'Hara (1986) measured depression, rather than depressive symptomatology, with the Schedule for Affective Disorders and Schizophrenia. Social support was assessed with the Social Support Interview. O'Hara reported that, of

the 99 pregnant women in the sample, 9% experienced a major or minor depression during pregnancy. The depressed women reported a perception of insufficient emotional and instrumental support from their spouses. It is difficult to determine whether this insufficient support was the result of living with a depressed woman or if the depression resulted from insufficient support. Zuckerman et al. (1989) did not attempt to arrive at a causal relationship between social support and depressive symptomatology. Likewise, O'Hara did not propose causality. However, other support from the network is not evaluated by O'Hara. It is also important to note the distinction between depressive symptomatology as measured by a self-report instrument and major or minor clinical depression diagnosed in the O'Hara study. The Zuckerman study is more readily generalizable to a broader population than the O'Hara study.

Degen, Myers, Williams-Peterson, Knisley and Schnoll (1993) studied a sample of 25 pregnant drug abusers and 55 pregnant nonusers, using the Pregnancy Research Questionnaire to measure both anxiety and depression and the Interpersonal Support Evaluation List to measure social support. The premise of the study was that social support is protective throughout the life span as people face the stress of life transitions. Results of the study were that those women with higher depressive symptomatology perceived less social support availability than their counterparts with lower levels of depressive symptomatology. The

researchers interpreted their findings as upholding the protective aspect of social support. The sample was probably too small to draw either conclusions or generalizability.

Norbeck and Tilden (1983) and Tilden (1984) used the Lubin Depression Adjective Checklist to assess depression and the Cohen and Lazarus Social Support Questionnaire with samples of 117 pregnant women and 141 pregnant women respectively. Norbeck and Tilden concluded that low social support was significantly related to high emotional disequilibrium, that is, depression and anxiety. Emotional support was significantly related to emotional disequilibrium, while tangible support was not. Tilden (1984) compared single and partnered pregnant women in the areas of depression and social support among other areas. Findings indicated that single women had lower social support, but that depression between the two groups did not differ significantly. Tilden proposed that there was no compelling reason to study depression during pregnancy in normal samples. The Norbeck and Tilden study combines depression and anxiety with the term emotional disequilibrium, which lacks clarity in terms of other studies.

Thorpe, Dragonas and Golding (1992) attempted a cross-cultural study of pregnant Greek and British women, using the Crown-Crisp Experiential Index to measure depression and an instrument designed for the study to measure social

support. Results were inconclusive in all areas with the Greek sample due to instrument insensitivity to cultural differences. For the British sample, social support was one of the best predictors of maternal emotional well-being during pregnancy. This study points up clearly the importance of careful selection of instruments in research.

Vilhjalmsson (1993), in an analysis of the literature addressing life stress, social support, and clinical depression, lists twelve studies, ten of which used the Present State Examination to assess clinical depression during pregnancy. The remaining two studies used the Schedule for Affective Disorders and Schizophrenia and the Clinical Interview for Depression. Consistent for all these studies was the primary support relationship as that with the husband or boyfriend. Vilhjalmsson emphasizes that clinical depression, not self-reported depressive symptomatology, is measured. This may account for the consistency of the measurement instrument used.

While some attention has been directed toward the problem of depression during pregnancy in recent years and the possible relationship of social support to depressive symptomatology, the literature suffers from the same difficulties as have been previously described. Numerous instruments have been used to measure both social support and depressive symptomatology. The majority of the studies have focused on postpartum depression or outcomes of pregnancy, but have provided useful information regarding

the problem of depressive symptomatology during pregnancy. The problems with interpretation and generalizing of the studies are confounded by the range of conceptual definitions of social support. Certain symptoms of depression, including changes in sleep pattern, energy level and appetite, are also symptoms of pregnancy, making assessment of depressive symptomatology during pregnancy more complex.

While multiple measurement instruments have been used to assess depressive symptomatology during pregnancy and an even greater variety of social support measures have been utilized, with only one exception (Tilden, 1984), there is support for a relationship between depressive symptomatology and social support. The research has investigated sample sizes ranging from 61 (Sacco & Macleod, 1990) to 1014 (Zuckerman et al., 1989) pregnant females, from adolescents (Cutrona, 1989; Sacco & Macleod, 1990; Turner et al., 1990) to adults (Collins et al., 1993; Gotlib et al., 1991; Mercer & Ferketich, 1988; Norbeck & Tilden, 1983; O'Hara, 1986; Tilden, 1984; Zuckerman et al., 1989), all income levels, and ethnic groups from hispanic (Zayas & Busch-Rossnagel, 1992) to British (Thorpe et al., 1992). Researchers have also addressed the relationship of social support and depressive symptomatology during pregnancy in black and caucasian samples. The diversity of subject samples and the generally adequate sample sizes of the existing research, while primarily focused on birth outcomes or postpartum

depression, has provided a basis for further investigation of the relationship of social support and depressive symptomatology during pregnancy.

Methods

Design

This study was a descriptive, correlational secondary analysis of data collected as part of an evaluation project at a comprehensive private, not for profit center serving primarily low income women for prenatal care (Schiffman & Omar, 1994). The evaluation consisted of survey administration including the Center for Epidemiologic Studies Depression Scale (CES-D), the Norbeck Social Support Questionnaire (NSSQ), and a chart review which included demographic data (see Appendix E).

Sample

The sample used in this secondary data analysis was comprised of those women from the original study who completed both the CES-D and the NSSQ. The original convenience sample of 172 subjects consisted of primarily low income, single, caucasian women ranging in age from 15 to 38 years, with an average age of 22.7 years (Schiffman & Omar, 1994). Of this original sample, 124 women completed both the CES-D and NSSQ. Low income women were defined as those women in the sample who had Medicaid, had Medicaid applications pending, or had no insurance to cover the cost of prenatal care and delivery. The majority of the sample were single and caucasian, with few having education beyond

high school. Of the original sample, only 17% were either married or living with someone, a percentage assumed to apply to the sample in the present study. The original sample was obtained from two sources for prenatal care in Jackson County, Michigan, the Center for Healthy Beginnings (n=137) and the Jackson County Health Department Maternal Support Services Program (n=35) (Schiffman & Omar, 1994). Table 1 provides selected demographic data for the original sample.

Table 1

Selected Demographics (N=172)

	<u>n</u>	<u>%</u>
Age		
<19 Years	51	29.7
20-29 Years	100	58.1
≥30 Years	21	12.2
Marital Status		
Single	108	62.8
Married/Cohabiting	47	27.3
Separated/Divorced	17	9.9
Race		
Caucasian	140	81.4
African American	29	16.9
Hispanic	2	1.2
Other	1	.6
Education Level		
<High School	3	1.7
Some High School	52	30.2
High School Diploma/GED	82	47.7
Some College	25	14.5
Associate Degree	4	1.7
Insurance Status		
Medicaid	120	69.8
Blue Cross	2	1.2
Other Insurance	2	1.2
Cash	7	4.1
Medicaid & Other Ins.	1	.6
Medicaid Pending	40	23.3

Instruments

The Center for Epidemiologic Studies Depression Scale (CES-D) is a 20 item questionnaire for the self-reporting of symptoms of depression developed for research in the general (nonpsychiatric) population (Radloff, 1977) (See Appendix B for sample CES-D). Of the total of sixteen items which assess depressive symptomatology in the CES-D five items assess depressed mood, three assess feelings of guilt and worthlessness, three assess feelings of helplessness and hopelessness, two assess psychomotor retardation, one assesses loss of appetite and one assesses sleep disturbance. Four items assess positive affect and help to minimize bias towards response sets. Each item is scored from 0 (rarely or none of the time: less than one day) to 3 (most or all of the time: 5 to 7 days) (See Appendix B).

The scale was designed to indicate a current state measure of depression and to respond to changes in state by assessing the frequency of symptoms occurring in the past week. Items in the CES-D are suggestive of symptoms that are less severe than those measured by other depressive inventories and include fewer somatic symptoms than the Beck Depression Inventory, also designed for use in the general population (Hock et al., 1995,). The CES-D is believed to produce fewer false positives in women during pregnancy and postpartum (Hock et al., 1995).

Internal consistency reliability coefficients have been reported to be .85 or above (Radloff, 1977) across varying age, sex and racial groups. Cronbach's alpha for the original study was .87 at the prenatal administration of the scale (Schiffman & Omar, 1994). Test-retest reliability correlation was .67 at a four month interval (Radloff, 1977).

Validity of the CES-D has been tested with known groups and has been found to differentiate between diagnosed depressed and non-depressed subgroups (Rabkin & Klein, 1987). Rabkin and Klein (1987) recommend use of the CES-D to measure depressive symptomatology but not for diagnosis of clinical depression.

Schiffman and Omar (1994) report that the three items in the CES-D which might be influenced by physiological changes of pregnancy rather than depression (poor appetite, effort and restless sleep) did not demonstrate a pattern of response different from other items.

The Norbeck Social Support Questionnaire (NSSQ) is a self-administered questionnaire developed by Norbeck et al. (1981) to measure multiple dimensions of social support (See Appendix C for representation of instrument). Three main variables are included in the instrument: total functional support, total network and total loss. Each variable is then divided into subscales. The functional support variable is divided into the components of affect (the expression of positive attitude of one person toward

another), affirmation (approval of another's deeds, beliefs or perceptions), and aid (the giving of symbolic or material assistance to another). The network variable is measured by the number of people in the network, duration of the relationships, and frequency of contact with network members. The loss component measures recent losses of network members and subsequent loss of support. In this study, only the functional support variable was measured. Scoring is on a 5-point Likert Scale, from 1 (not at all) to 5 (a great deal).

Initial test-retest correlations were reported to be between .85 and .92 within a one week interval, and the internal consistency coefficient was .88 (Norbeck et al., 1981). In later testing (Norbeck, Lindsey & Carrieri, 1983), a moderately high level of test-retest reliability was found over a seven month interval (ranging from .58 to .78). Construct validity was demonstrated between the NSSQ and two similar interpersonal constructs (need for inclusion and affection), and through lack of correlation between the NSSQ and an unrelated construct (need for control) (Norbeck et al., 1983).

Operational Definitions

The purpose of this study was to determine the existence of a relationship between depressive symptomatology during pregnancy and social support. For that reason, there are no designated dependent and independent variables, but rather the categorical variable

of depressive symptomatology and the continuous variable social support.

The variable in this study of depressive symptomatology was measured by the score on the CES-D. On a 4-point scale, respondents indicate the frequency and duration of each item experienced during the past week. Responses range from 0 (rarely or none of the time: less than one day), to 3 (most or all of the time: five to seven days), with reverse scoring for the four positive affect items. Scores range from 0 to 60, with higher scores reflecting greater depressive symptomatology. For this study the CES-D data will be divided into four subsets: those with scores of 10 or less (free of depressive symptomatology), scores of 11 to 15 (minimal to mild depressive symptomatology), scores of 16 to 26 (moderate depressive symptomatology) and scores of 27 to 60 (significant or severe depressive symptomatology). A score of 16 or higher has generally been determined to indicate depressive symptomatology warranting further clinical assessment in the general population (Weissman, Sholomskas, Pottenger, Prusoff & Locke, 1977). Zich et al. (1990) suggest a more stringent cut-off of 27 for increased accuracy of diagnosis of depression in those persons receiving medical treatment in primary care, a group in which pregnant women could be included. While it was not the purpose of this study to diagnose depression or designate any group as having a major depressive episode as opposed to depressive symptomatology, this group of scores

of 27 or higher was of interest in determining severity of depressive symptomatology in this sample of pregnant women.

The other variable for this study was social support, as measured by score on the NSSQ. For purposes of this study, social support is operationalized as the self-report of the subjects sampled regarding the perceived approval, positive feelings or aid in any form from a member or members of the subject's network. In completing the NSSQ, the respondents were asked to list each significant person in their life who provides support or is important to them now, and to specify their relationship to each person, choosing from a list of nine categories (spouse or partner, friend, family or relative, neighbor, healthcare provider, counselor or therapist, clergyman, work or school associate). Questions are asked regarding each relationship and respondents rate each member of their network on a 5-point Likert scale, ranging from 1 (not at all), to 5 (a great deal). Scoring is done from the respondents ratings for each person in their network in the functional component subscales and the network subscales, providing data for both quantity and quality of the network. Total score and mean score on the NSSQ functional support component was used to determine the variable of social support, with a further breakdown of functional support scores into categories of affect, affirmation, and aid (see Appendix C) expressed as mean score for each subset. Responses to other questions regarding duration of relationship, frequency of contact,

and loss were not analyzed in the current study, because the study is limited to perceived functional support.

Data Collection

Data for this secondary analysis study was collected for the original study from a sample of 172 subjects enrolled between May, 1992 and May, 1993. Subjects were obtained from two sources, the Center for Healthy Beginnings ($n=137$) and the Jackson County Health Department Maternal Support Services Program (Schiffman & Omar, 1994). Data was provided for the present study by the original researchers' code book and computerized data, recorded and analyzed initially using the SPSS statistical package.

Data Analysis

The SPSS statistical package was used to analyze data. Frequency distributions for maternal sociodemographic data were calculated using frequency and percents. To address the research question regarding the degree or severity of depressive symptomatology in this sample, total scores on the CES-D were calculated for each member of the sample. Utilizing the cut points previously described, four groups were established. The number and percent of women in the sample who fell within each group determined the extent and severity of depressive symptomatology. To answer the question of the existence of a relationship between depressive symptomatology during pregnancy and social support, a one-way ANOVA was performed using total functional support score on the NSSQ for each group of CES-D

scores. A one-way ANOVA was then carried out for each subset of NSSQ scores in the functional category: affect, affirmation and aid.

Human Subjects Protection

The original project was approved by the Michigan State University UCHRIS committee (see Appendix G). Approval of the Michigan State University UCHRIS committee was obtained for this secondary data analysis (see Appendix G). Only the previously coded data were used, with no identification of subjects except the numbers assigned by the original researchers.

Limitations

In performing secondary data analysis the researcher is limited by the sample selected for the original study. It is believed that the size of the original sample ($N=172$) is adequate for this study and that the subjects in the original sample who completed both the CES-D and NSSQ ($N=124$) was an adequate sample for the present study.

When conducting secondary data analysis of previous research one is also limited by original subject selection criteria, potentially limiting the generalizability of the results of data analysis to a broader population than the primarily low income pregnant female population sampled in the original study. For purposes of this study, the original sample of 172 primarily low income pregnant women in Jackson, Michigan was considered adequate, as were the instruments used, the CES-D and the NSSQ. Any omitted

questions or responses by the subjects were not assumed to significantly effect the outcome of the data analysis of this study. The nature of the data available for this study does not provide information regarding the subjects' depression status prior to pregnancy, or whether any of the subjects had previously received treatment for depression. This limits this study's ability to attribute CES-D scores available solely to the stressful life event of pregnancy.

Assumptions

It was assumed that all respondents were able to read the questionnaires, were given identical instructions for the completion of the questionnaires, provided accurate and honest responses and were not influenced by transient feelings of distress or a desire to provide what they viewed as socially appropriate responses. It was further assumed that data was entered for analysis accurately into the SPSS program.

Results

Of the original sample of 172 pregnant, primarily low income women, 124 completed the CES-D. Total score on the CES-D ranged from 0 to 46. In reference to the question of severity and extent of depressive symptomatology in this sample, mean score for the sample was 16.33, with 16 being the accepted score for symptomatology warranting further evaluation for depression. As can be seen in Table 2, 37 of the 124 subjects who completed the CES-D (30%) had scores in the range considered free of depressive symptomatology. The

remaining 87 subjects (70%) had some degree of depressive symptomatology. Just over 45% of the sample scored in the moderate to severe range of depressive symptomatology, with 15% of the sample scoring in the severe range (Table 2).

Table 2

Frequency and Percent of CES-D Score Categories (N=124)

Depressive Symptoms on CES-D	<u>n</u>	<u>%</u>
FREE (0-10)	37	29.8
MILD (11-15)	30	24.2
MODERATE (16-26)	38	30.6
SEVERE (27+)	19	15.3

To address the research question of the existence of a relationship between depressive symptomatology during pregnancy and perceived social support, a one-way ANOVA for analysis of variance was completed from NSSQ results for total functional support related to each of the four CES-D categories and for each subset of functional support: affect, affirmation and aid, related to each of the four CES-D categories (Table 3). Results supported the hypothesis that there is a relationship between social support and depressive symptomatology in the areas of total functional support and the affect support component. Those subjects in the group free of depression perceived a statistically higher level of total functional support than the group with severe symptoms of depression (Table 3).

The same pattern was observed in the affect component of functional support within the group free of depressive symptomatology and having significantly higher social support scores than found in the severe symptomatology group. The ANOVA for both the aid and affirmation components did not show significant differences for any of the CES-D groups, although the aid component showed a trend in the same direction. The lowest scores in all categories of social support analyzed were in the severe symptomatology group, falling well below both the free of symptomatology and mild symptomatology group scores.

Discussion

Question 1, what is the extent and severity of depressive symptomatology in this sample, is answered as expected, based upon the review of the literature. Of the 124 valid responses, 45.9% scored 16 or higher on the CES-D, indicative of depressive symptomatology warranting clinical evaluation (see Table 2). This percentage is markedly higher than the extent of depressive symptomatology found in the literature when a similar cut score was used. O'Heron (1991), using a cut score of 16 with the BDI, found 20% to meet the criteria for depressive symptomatology, while Gotlib et al. (1989) found 25.8% of their sample of 360 women to meet the criteria, using a cut score of 10 on the BDI. Zuckerman et al. (1989) report a mean score of 16 and median of 18.9 on the CES-D for their sample of 1014 primarily low income women, compared with a mean score of

16.33 for the current sample of 124 primarily low income women.

Table 3

Analysis of Variance: Functional Support on the NSSQ by CES-D Symptomatology (N=107)

Group	<u>n</u>	<u>M</u>	<u>SD</u>	Range	<u>F</u>	<u>p</u>
Total FS a					2.75	.05
FREE b	29	193	117.90	49-478		
MILD	28	159	72.31	55-338		
MODERATE	35	164	84.62	38-380		
SEVERE b	15	113	48.97	37-199		
Affect FS					3.08	.03
FREE b	30	72	47.48	20-180		
MILD	28	56	25.10	20-114		
MODERATE	35	59	32.13	12-144		
SEVERE b	17	41	16.69	10-69		
Affirmation FS					2.20	.09
FREE	29	64	42.21	16-183		
MILD	28	53	23.31	16-104		
MODERATE	35	54	28.24	12-131		
SEVERE	16	40	17.87	14-68		
Aid FS					2.53	.06
FREE	30	58	32.71	13-144		
MILD	28	50	25.40	18-120		
MODERATE	35	50	25.87	12-120		
SEVERE	17	35	15.14	13-70		

Note. 107 of the sample of 124 completed both the CES-D and NSSQ, therefore 107 responses were included in the analysis.
a FS=Functional Support. b These two groups are significantly different at the .05 level by Scheffe post hoc analysis.

The sample in the current study differs from that of Zuckerman et al. (1989) in being primarily caucasian compared to the 1989 sample of primarily African American women. The samples are similar in other categories. The

current sample differs from the O'Heron (1991) sample, which consisted of middle income women with a mean education level of 13.3 years. The majority in the O'Heron sample were married and receiving prenatal care from private practitioners. Like the current sample, O'Heron's subjects were primarily caucasian. Findings in each study were similar, despite differences in sample characteristics.

The subjects for the current study were recruited and interviewed during their first, second and third prenatal visits, presumably during their first trimester. O'Heron's 1991 sample was recruited during the second and third trimesters. It is unclear at what point during pregnancy Zuckerman et al. (1989) recruited their sample. Given similar findings in each study, the trimester during which women are interviewed may not effect extent or severity of depressive symptomatology.

In this sample, at least 97.8% are low income, as evidenced by eligibility for Medicaid as at least one defining characteristic for low income status. The literature indicates that studies which have drawn samples from low income populations have shown the highest percentage of women scoring in the higher range of the depression inventories used (Zuckerman et al., 1989; Zayas & Busch-Rossnagel, 1992). Regardless of the reasons for this high level of depressive symptomatology, it is indicative of a serious problem which has been largely overlooked by providers of prenatal care.

Results of the data analysis which supported the hypothesis and the expected outcome are the mean total functional support scores and mean affect component scores, which is supported in the literature (Collins et al., 1993; Degen et al., 1993; Norbeck & Tilden, 1983; Thorpe et al., 1992; Turner et al., 1990; Zuckerman et al., 1989) Women with the highest social support scores on other indices have shown that the acceptance and love of spouse, partner and family are most important for the woman to feel supported. This is also a category of support which people with limited economic resources can provide. The literature also suggests that women with severe depressive symptomatology are less able to access the support of others or to reach out due in part to feelings of worthlessness and diminished interest in activities. The NSSQ asks two questions regarding aid, one of which involves material help in the way of money or transportation, the other involving extended help if confined to bed for several weeks. In a sample of low income women, it would be expected that this area might receive low scores, since many low income people do not have persons in their network who have money to lend or cars with which to provide transportation. Few low income women have members in their support network who could freely devote assistance over a period of several weeks. It is an assumption of this researcher that people have in their networks primarily others who are in like circumstances. Low income women would tend to have friends and family from

similar economic circumstances, which would account for lower scores in the aid category. Despite the low scores in the area of aid functional support, ANOVA results showed a trend toward the significant results in the total functional support and affect components.

The affirmation component of functional support showed the least significance in the ANOVA. It would appear likely that affect and affirmation would follow similar patterns, which is noted in Table 3, with differences in the relationship and probability items. It could be assumed that the failure of the affirmation component to show stronger relationship to depressive symptomatology is because depressed women are unable to confide in members of their support network or that depressed women have difficulty feeling support and affirmation from others in the presence of feelings of worthlessness.

It is important to note that because this sample consisted of primarily low income pregnant women enlisted during their first prenatal visit, with questionnaires completed during the second and third prenatal visits, it cannot necessarily be generalized to a broader population of other income levels or in the later stages of pregnancy. However, the results support the evidence in the existing literature that pregnant women who perceive a higher degree of functional social support tend to have lower depressive symptomatology scores. While the results of this study do not indicate a cause and effect relationship between social

support and depressive symptomatology, the results do support the hypothesis that there is a relationship between perceived social support and self-reported symptoms of depression.

Any interpretation of results of this study is limited by lack of information regarding the subjects' depressive symptomatology prior to pregnancy and their perceptions of social support throughout the pregnancy. Subjects completed questionnaires on only one occasion during pregnancy, generally during the first trimester. This limits interpretation of the results to relationship of the variables at a point in time and does not extend interpretation to a cause and effect relationship.

Interpretation of results of data analysis is limited by missing data. Of the 172 original subjects, 124 completed the CES-D, while only 107 subjects completed both the CES-D and NSSQ. A sample of this size is adequate and the missing data was not considered to be problematic for data analysis.

The model for this study, adapted from the wheel model developed by Roy, shows the adaptive response as free of depressive symptomatology and the presence of severe depressive symptomatology as a maladaptive response to pregnancy (Figure 1). The model presents a continuum of response from adaptation to maladaptation as evidenced by the absence of (FREE) to presence of depressive symptomatology (MILD, MODERATE, SEVERE). Low income status

is presented as the contextual stimulus influencing the pregnant woman's response. The pregnant woman's response could perhaps be mediated by her perception of social support from her support network, but does not imply cause and effect. The model is therefore well suited to the study and is supported by the findings. The findings indicate that an adaptive response in terms of no depressive symptomatology or mild symptomatology for the subjects of the study is related to perceived total functional support and the affective component of functional support. The model presents the possibility of a relationship of the variables without assuming more than the study results present. The results of the study do not imply cause and effect, only the existence of a relationship between variables. The model is not fully supported by the study results in the components of affirmation and aid, which are presented as an integral aspect of functional support from the support network.

Implications for Practice

Implications for the APN, based upon the data in this study, are that the extent and severity of depressive symptomatology during pregnancy appears to be much greater, at least among low income women, than has previously been acknowledged. The study also offers support for a relationship between depressive symptomatology during pregnancy and total functional support, particularly the affect component of social support.

With support in the literature for the possibility of negative health behaviors and poor birth outcomes as a result of depression (Collins et al., 1993; Degen et al., 1993; Zuckerman et al., 1989) it is important that prenatal care include an assessment for depressive symptomatology, with further evaluation for clinical depression as indicated by assessment results. Score on a standardized assessment tool for depressive symptomatology can assist the APN in selecting an appropriate role with the pregnant woman. The APN functions in a variety of roles with the pregnant woman. The assessor role can identify both history of depressive symptomatology and present depressive symptomatology, while the roles of coordinator of primary care and collaborator with other health care professionals can facilitate referral of the client for necessary counseling for moderate to severe depressive symptomatology. For clients with minimal or mild depressive symptomatology the APN can serve as counselor and educator regarding the physical and emotional changes of pregnancy.

The current study shows a statistically significant relationship between total functional social support and the affect component to depressive symptomatology during pregnancy for the group free of symptomatology and those with severe symptomatology. This relationship, supported in the literature, should serve to guide the role of the APN as a provider of not only healthcare, but social support. Encouraging the pregnant woman to bring a family member,

friend, or significant other to prenatal appointments may facilitate an avenue of support for the client from her own network. Discussing with the client who in her network could be a source of support is an important role for the APN. Utilizing the NSSQ can facilitate this discussion. The APN, as clinician, can provide anticipatory guidance at prenatal visits, to aid the client in dealing with the physical and emotional changes that commonly occur during pregnancy. Based upon the findings of this study, focus on the affective component of social support by the APN, by listening and evidencing respect and concern for the patient's questions, thoughts and emotions, can guide practice in the support role.

The APN should pay attention to the characteristics of the low income women who present for care. The pregnant women in the current sample were primarily under the age of thirty and single. Based on study results, attention should be paid to facilitating interaction with the social support network of women who fit this profile, particularly those women who score in the moderate to severe range on a self-report depression scale. Visits may be necessary for these women on a schedule differing in frequency from the traditional monthly visits early in the pregnancy. The APN can reach out to these and other women in the community through the establishment and facilitation of support groups to address prenatal and depressive symptomatology issues. Working in conjunction with such community resources as

Community Mental Health and the local health department, the APN can provide information for the professional community regarding the extent and severity of depressive symptomatology in this population of pregnant women and utilize the expertise of other professionals as speakers or co-facilitators for support groups. The resources of the community can assist in enhancing available social support for the pregnant women. While not all components of functional support showed significant relationship to depressive symptomatology in data analysis, there were significant results for the groups free of symptoms and with severe symptoms in the total functional support category. This would indicate that support in any component area would be included in total functional support and would possibly enhance the social support system of group members.

Women who are experiencing moderate to severe depressive symptomatology present a challenge to the APN in that this group has difficulty both reaching out for and accepting support due to symptoms including feelings of worthlessness and loss of energy or interest in relationships or activities. These women should be strongly encouraged to participate in a support group. Efforts should be made by the prenatal care provider to encourage participation. These women may also require particular efforts from the provider to include a member or members of the woman's support network to be involved in prenatal visits. With the client's consent, a Community Mental

Health outreach therapist can attend a prenatal visit to meet the client in a non-threatening setting and offer individual therapy if necessary. Office visits for prenatal care should be scheduled frequently in order to provide close observation of depressive symptomatology. In addition, prenatal visits for clients with moderate and severe depressive symptomatology should be allowed adequate time on the schedule for counseling and ongoing mental health assessment. Individual therapy at Community Mental Health and evaluation for medication by the CMH psychiatrist can be facilitated by the APN during prenatal visits.

The APN has a responsibility to share the findings of this and other studies with the professional community providing prenatal care. Beyond the APN's individual practice, development of a practice protocol for prenatal care including initial assessment of the patient's or her family's history of depression and completion of a self-report depression scale on the second prenatal visit. Utilizing a standardized scale such as the CES-D which has efficacy in this population as documented in the literature, will help to avoid subjective evaluation of symptomatology on the part of other providers in a practice. The ongoing assessment of depressive symptomatology, once during each trimester, would provide improved understanding of the problem of depression during pregnancy.

As a professional in the community the APN can reach out to prenatal care providers in the area to share

information regarding the relationship of depressive symptomatology and social support based on the results of this study and available literature.

Implications for Research

The implications for further research based on the findings of this study involve the need for further research into the extent and severity of depressive symptomatology during pregnancy for other income groups. Previous research has primarily addressed depressive symptoms during pregnancy as they relate to postpartum depression or to pregnancy outcomes. While these are important issues, the affective state of the pregnant woman is also important. A depressed state can affect healthcare decisions the woman makes and can result in energy changes limiting activity and social interaction. Pregnancy is a time when the generally accepted treatment for depression, medication, is not a desirable option. Nurse researchers have a responsibility to better understand the problem of depressive symptomatology during pregnancy and to seek to develop interventions which might decrease the extent and severity of the problem. While the current study does not offer information regarding cause and effect, it does offer support for further research into the relationship between depressive symptomatology during pregnancy and perceived social support. Researchers need to study both depressive symptomatology and perceptions of social support throughout the pregnancy for enrolled subjects. Specifically,

measurement of depressive symptomatology and network support once during each trimester would provide information regarding changes in perception of social support and symptomatology which would have further implications for practice. Information is needed through research regarding the impact of support groups on self-report depressive symptomatology and perceived social support through an intervention study. The role of low economic status in depressive symptomatology during pregnancy warrants further investigation to add to the existing body of research. Economic groups from low to high could be compared in a study of perceived social support and depressive symptomatology. It is only by building a large enough body of research that professionals from areas other than nursing will begin to develop altered practice patterns. Research with samples drawn from various income groups would provide information regarding the role of economic status on the extent and severity of depressive symptomatology during pregnancy. The subjects in the current study were primarily single, with 41% primigravidas and 88% under the age of thirty. Further research is needed regarding the impact of marital status, parity and maternal age on both depressive symptomatology during pregnancy and perception of social support. Does marital status impact perceived social support? Does parity effect severity of depressive symptomatology? Does maternal age effect severity of depressive symptomatology and perception of social support?

It is also important, based upon a review of the literature, for nurse researchers and other researchers into human relationships to establish a more unified conceptual definition of social support with agreement regarding measurement instruments. For the practitioners to effectively utilize research, some consistency in the measurement of social support is needed. Current research and the myriad of both instruments and terminology result in confusion and difficulty in interpreting the research and extending it to new subjects. Multiple studies utilizing a single instrument to assess social support, such as the NSSQ, will aid in making the instrument more widely accepted.

Summary

This study is a secondary analysis of data collected from 124 primarily low income women. The extent and severity of depressive symptomatology for this group of women and the possible relationship of depressive symptomatology and the each woman's perception of available social support were analyzed statistically. While the results were not clear cut and conclusive in all areas, the problem of depressive symptomatology during pregnancy for this particular group was defined and a relationship between depressive symptomatology and perceived functional social

support was found. This study lends support to the existing literature and opens the door for further research. Further study is needed to better understand the role of social support in depressive symptomatology among pregnant women.

Appendices

Criteria for Major Depressive Episode

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

(1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g. feels sad or empty) or observation made by others (e.g. appears tearful). Note: In children and adolescents, can be irritable mood.

(2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others).

(3) significant weight loss when not dieting or weight gain (e.g. a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains.

(4) insomnia or hypersomnia nearly every day.

(5) Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

(6) fatigue or loss of energy nearly every day.

(7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).

(8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

(9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or specific plan for committing suicide.

B. The symptoms do not meet criteria for a Mixed Episode.

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition (e.g. hypothyroidism).

E. The symptoms are not better accounted for by bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

American Psychiatric Association (1994)
Diagnostic Criteria from DSM-IV

Representation of CES-D Scale

INSTRUCTIONS FOR QUESTIONS: Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

Rarely or None of the Time (Less than 1 Day)

Some or a Little of the Time (1-2 Days)

Occasionally or a Moderate Amount of Time (3-4 Days)

Most or All of the Time (5-7 Days)

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 help from 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 dislike me.
 20. I could not get "going".
-

The CES-D scale: A self-report depression scale
for research in the general population.

Representation of Norbeck Social Support Questionnaire

For each person you listed, please answer the following questions by writing in the number that applies:

- 1=not at all
- 2=a little
- 3=moderately
- 4=quite a bit
- 5=a great deal

Personal Network

First name or initials	Relationship
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

(total of 20 spaces provided)

Questions

- *1. How much does this person make you feel liked or loved? (affect)
- *2. How much does this person make you feel respected or admired? (affect)
- *3. How much can you confide in this person? (affirmation)
- *4. How much does this person agree with or support your actions or thoughts? (affirmation)
- *5. If you need to borrow \$10, a ride to the doctor or some other immediate help, how much could this person usually help? (aid--short term)
- *6. If you were confined to bed for several weeks, how much could this person help you? (aid--long term)
- *7. How long have you known this person? (duration of relationship)
- *8. How frequently do you usually have contact with this person? (phone calls, visits, or letters) (frequency of contact)
- 9. During the past year, have you lost any important relationship due to moving, a job change, divorce or separation, death, or some other reason? (recent loss)
 - 9a If YES, check the category(s) of persons who are no longer available to you. (9 categories listed)
 - 9b How much support did this person (or persons) provide for you during the past six months?

Ratings are based on a 5-point rating scale specified for each question. Question 1 to 6 and 9b: 1=not at all to 5= a great deal. Question 7: 1=less than 6 months to 5=more than 5 years. Question 8: 1=once a year or less to 5=daily.

Note. *Questions used for analysis of social support in the present study.

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Appendix D

August 10, 1995

TO: Rachel F. Schiffman
A112 Life Sciences

RE: IRB#: 95-423
TITLE: THE RELATIONSHIP OF SOCIAL SUPPORT AND
DEPRESSIVE SYMPTOMATOLOGY DURING PREGNANCY
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 08/08/95

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.



OFFICE OF
**RESEARCH
AND
GRADUATE
STUDIES**

**PROBLEMS/
CHANGES:**

Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

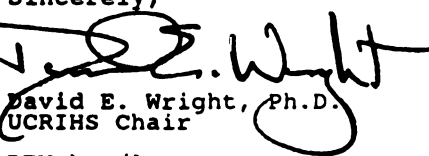
If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX: 517/432-1171

Sincerely,


David E. Wright, Ph.D.
UCRIHS Chair

DEW:kaa/lcp

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OFFICE OF VICE PRESIDENT FOR RESEARCH
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EAST LANSING • MICHIGAN • 48824-1046

March 19, 1992

Mildred A. Omar, Ph.D.
Rachel F. Schiffman, Ph.D.
A-230 Life Sciences Bldg.

RE: FACTORS INFLUENCING PREGNANCY OUTCOME, IRB #92-115

Dear Drs. Omar and Schiffman:

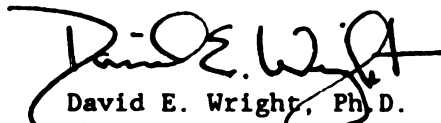
The above project is exempt from full UCRIHS review. One of the Committee's members has reviewed the proposed research protocol and finds that the rights and welfare of human subjects appear to be protected. You have approval to conduct the research.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval one month prior to March 16, 1993.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,



David E. Wright, Ph.D.
Chair, UCRIHS

DEW/pjm

MICHIGAN STATE UNIVERSITY

OFFICE OF VICE PRESIDENT FOR RESEARCH
AND DEAN OF THE GRADUATE SCHOOL

EAST LANSING • MICHIGAN • 48824-1046

March 2, 1993

TO: Rachel Schiffman, Ph.D.
Mildred Omar, Ph.D.
A230 Life Sciences

RE: IRB #: 92-115
TITLE: FACTORS INFLUENCING PREGNANCY OUTCOME
CATEGORY: 1-C
REVISION REQUESTED: February 23, 1993
APPROVAL DATE: March 1, 1993

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project including any revision listed above.

UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must seek updated certification. Request for renewed approval must be accompanied by all four of the following mandatory assurances.

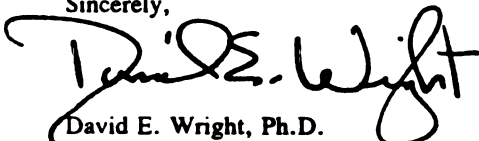
1. The human subjects protocol is the same as in previous studies.
2. There have been no ill effects suffered by the subjects due to their participation in the study.
3. There have been no complaints by the subjects or their representatives related to their participation in the study.
4. There has not been a change in the research environment nor new information which would indicate greater risk to human subjects than that assumed when the protocol was initially reviewed and approved.

There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. Investigators must notify UCRIHS promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

If we can be of any future help, please do not hesitate to contact us at (517) 355-2180 or FAX (517) 336-1171.

Sincerely,



David E. Wright, Ph.D.
UCRIHS Chair

DEW:pjm

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