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Factors Related to Formal and Informal Help-Seeking for Perinatal Depressive Symptoms

by

Erin Henshaw

Dissertation

Submitted to the Department of Psychology

Eastern Michigan University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Clinical Psychology

Dissertation Committee:

Carol R. Freedman-Doan, Ph.D., Chair

Michelle R. Byrd, Ph.D.

Heather A. Flynn, Ph.D.

John Knapp, Ph.D.

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Ypsilanti, Michigan

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## ABSTRACT

Effective treatment for maternal depression improves overall maternal functioning and prevents the negative infant outcomes associated with maternal depression (Verduyn et al., 2003). Despite the clear benefits associated with treatment for perinatal depression, less than one third of depressed women seek any form of treatment (Flynn et al, 2006). The Health Belief Model (HBM) has received some support for other health-promoting behaviors, but its relevance for explaining mental health help-seeking has not been adequately tested. This study adds to the literature by simultaneously providing a more comprehensive and adequate test of the HBM in predicting mental health treatment for depression while also further explicating predictors of treatment use among perinatal women, a particularly vulnerable and important population. Mental health treatment-seeking has traditionally been defined as a visit to a mental health professional or physician; however, it is likely that many women engage in more informal treatments for their depressive symptoms. Thus, in the current study, we expanded this view to include both *formal* treatment-seeking, as traditionally defined, as well as *informal* treatment-seeking such as reading a self-help book, searching for information online, or speaking with a trusted friend or family member. Current use of informal and formal treatment interventions was assessed to determine how perceptions of depression and its treatment predicted treatment-seeking for depression in pregnancy. Participants were recruited from urban and suburban obstetric clinics in southeast Michigan. A total of 459 pregnant women were initially screened for elevated depressive symptoms. Within this sample, 110 participants reporting elevated depressive symptoms were administered a survey regarding their perceptions of depression and its treatment based on the HBM. It was hypothesized that five factors of the HBM

(perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and cues to action) would predict the frequency of formal and informal treatment-seeking among participants. Associations between perceptions and mental health treatment-seeking were assessed through hierarchical multiple regression. Results indicate that previous treatment, perceived benefits of treatment, and cues to action were significantly related to treatment-seeking behaviors, partially supporting the HBM.

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## CHAPTER 1: INTRODUCTION AND BACKGROUND

Researchers consistently have found that despite the availability of empirically supported treatments, most people experiencing significant psychological distress do not seek professional mental health services (Andrews, Issakidis, & Carter, 2001; Green-Hennessy, 2002; Watkins, Burnam, Kung, & Paddock, 2001). Depression is a particularly debilitating illness, commonly ranked as one of the most costly and disabling illnesses in the United States (McKenna, Michaud, Murray, & Marks, 2005), especially among women, for whom depression has been named the leading cause of disease-related disability (Kessler, 2003). Women are approximately 1.7 times as likely as men to report a major depressive episode at some point in their lives (American Psychiatric Association, 2000). The perinatal period is a particular time of heightened vulnerability to and consequences of depression for women. Among women who ever experience a major depressive episode, approximately half will experience their first episode in the year following pregnancy (Moses-Kolko & Roth, 2004). In addition, depressive symptoms have been associated with pregnancy health risks for both the mother and infant (Alder, Fink, Bitzer, Hüsli, & Holzgreve, 2007). Despite the high stakes associated with untreated depression during the perinatal period, few women experiencing depression in pregnancy seek treatment (Flynn, O'Mahen, Massey, & Marcus, 2006). The Health Belief Model (Becker, 1974; Janz & Becker, 1984) has received support as a useful model for predicting other health-related behaviors (e.g., Barclay et al., 2007) but has not been fully applied to mental health treatment-seeking. This study will add to the literature by simultaneously providing a more comprehensive and adequate test of the HBM in predicting mental health treatment for depression while also further explicating predictors of treatment use among perinatal women, a particularly vulnerable and important population.

### *Public Health Significance of Depression*

Major Depressive Disorder is the most commonly diagnosed psychiatric disorder among adults, with estimated lifetime prevalence rates of 20-25% for women and 9-12% for men (Kessler et al., 1994). In a recent clinical trial, 63% of individuals diagnosed with major depressive disorder and 85% of individuals with chronic depression reported severe impairment of quality of life (Rapaport, Clary, Fayyad, & Endicott, 2005), and it is estimated to be the second leading cause of disability worldwide by the year 2020 (Murray & Lopez, 1997).

The impact of depressive symptoms on daily functioning is not limited only to those who meet full criteria for Major Depressive Disorder, however. Elevated depressive symptomatology describes the experience of individuals who exhibit some, but not necessarily all, of the criteria of Major Depressive Disorder. Both Major Depressive Disorder and elevated depressive symptomatology have been found to have a stronger and more pervasive effect on all domains of health-related quality of life than common medical disorders (da Silva, Flávia, de Almeida, & Marcelo, 2007; Spitzer et al., 1995), and both are associated with a high economic burden related to symptoms (Katon et al., 1999; Simon et al., 1995a, 1995b). Given the impact of elevated depressive symptomatology on functioning, evaluation of individuals experiencing this level of distress is warranted. Thus, all women reporting elevated depressive symptomatology as measured by a well-established depression screening tool will be included in the present study of perinatal depression.

### *Depression in Women*

Among women, the childbearing years are the most common time period for experiencing a first depressive episode. This marks a critical point for depression

intervention, because once a first episode occurs, the risk of relapse is 80% for untreated depression (Judd et al., 1998). For many women with a history of depressive episodes, pregnancy and the childbearing years marks their first experience of depression and, with it, the first time they are faced with the decision of how to respond to the symptoms of this illness. Thus, the perinatal period is a critical time for assessment of treatment decisions regarding depression.

### *Depression and Pregnancy*

Depression during pregnancy has been reported to affect one in four women according to self-reported symptoms and approximately 12% of women when using diagnostic measures (Flynn, 2005). In the postpartum period, women have been found to be three times as likely to develop a new major depressive episode when compared with a matched non-pregnant group of women (Cox, Murray, & Chapman, 1993). Postpartum “blues” are a fairly common occurrence within the first week following delivery, sharing some characteristics of postpartum depression such as depressed mood and tearfulness. However, postpartum blues are distinguished from postpartum depression in prevalence, course, and severity of symptoms (American Psychiatric Association, 2000), typically resolving without need for treatment, although severe postpartum blues symptoms have been identified as a risk factor for developing postpartum depression (Henshaw, Foreman, & Cox, 2004). Additional risk factors for developing postpartum depression include prenatal depression or anxiety, low self-esteem, childcare stress, life stress, low social support, dissatisfaction with marital relationship, history of previous depression, and infant temperament. Small effects have been found in predicting postpartum depression through marital status, socioeconomic status, and unwanted or unplanned pregnancy (Beck, 2001).

Overall, the perinatal period marks a time of increased vulnerability to depressive symptoms for women during a critical period of development for both mother and infant.

### *Depression and Mother and Infant Outcomes*

Perinatal depression poses a health risk to both depressed women and their infants. Risks to women include increased rates of preeclampsia (Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala, 2002) and lower health-related functioning (McKee, Cunningham, Jankowski, & Zuyas, 2002). Risks to infants include low birth weight, preterm delivery, small size for gestational age (Kelly, Russo, Holt, Danielson, Zatzick, Walker, & Katon, 2002; Steer, Scholl, Hediger, & Fischer, 1992), and increased episodes of diarrhea in first 12 months (Rahman, Iqbal, Bunn, Lovel, Harrington, 2004), as well as increased irritability (Zuckerman, Bauchner, Parker, & Cabral, 1990). Mothers with depressive symptoms bringing their children for pediatric care report that they find it difficult to care for the physical health of their children due to mental health symptoms (Grupp-Phelan, Whitaker, & Naish, 2003). Consistent with this report, depressive symptomatology in mothers has been linked to less consistent care for the physical health of their young children. Depressed mothers are more likely to miss scheduled pediatric outpatient visits (Flynn, Davis, & Marcus, 2004), more likely to miss or delay recommended child vaccination schedules (Turner, Boyle, & O'Rourke, 2003), and also less likely to administer vitamins to their children and use car seats regularly (Leiferman, 2002).

The impact of maternal depression on children includes psychosocial as well as physical developmental problems. Following birth, depressive symptoms in mothers have been linked to viewing their infants less positively (Foreman & Henshaw, 2002). As infants, children of depressed mothers compared to children of non-depressed mothers have been

found to be less responsive in interactions with caregivers and strangers (Field et al, 1988). As preschoolers, they are more likely to exhibit significant behavioral problems (Alpern & Lyons-Ruth, 1993), and as older children, they report higher rates of depression, substance abuse, and conduct disorders (Beardslee & Wheelock, 1994; Feder et al., 2008).

#### *Outcomes of Mental Health Treatment for Depression in Pregnancy*

Psychotherapy and medication treatment have received empirical support for treating depressive symptoms (see Hollon, Thase, & Markowitz, 2002 for review) and are recommended standards of care for individuals with Major Depressive Disorder (American Psychiatric Association, 2000). For depressed individuals, treatment of depression predicts shorter episodes of depression, fewer lifetime episodes, and longer inter-episode recovery than no treatment or under-treatment (Frank et al., 1990; Segal, Williams & Teasdale, 2002). Cognitive-behavioral therapy and interpersonal psychotherapy for depression have both received support in clinical trials for mild to moderate postpartum depression (Appleby, Warner, Whitton, & Faragher, 1997; O'Hara, Stuart, Gorman & Wenzel, 2000). Efficacious treatments have demonstrated improvement in both mother and infant outcomes, including prevention of adverse infant neurobehavioral outcomes (Appleby et al., 1997; Logsdon et al., 2003; O'Hara et al., 2000; Moses-Kolko & Roth, 2004). Thus, it is critical for mother and infant health that pregnant women experiencing depressive symptoms be connected with efficacious treatment.

#### *Help-Seeking During Pregnancy*

Despite high levels of reported depressive symptoms during pregnancy and support for the efficacy of depression treatments, research consistently indicates that very few women seek formal treatment, meaning medication or psychotherapy, for depression during

the perinatal period (Flynn et al., 2006). In a recent study of using both diagnostic interviews and brief depression screening tools in OB/GYN clinics, only one third of pregnant women diagnosed with a current Major Depressive Episode were seeking treatment at the time of interview, and only 20% of women with high depression risk (indicated by elevated depressive symptoms, recent Major Depressive Episode, or discontinuation of antidepressant medication for pregnancy) received any depression treatment (Flynn et al., 2006). Among a combined sample of urban and suburban women at risk for depression, 12% of women reported seeking any help from a mental health professional in the previous 6 months (O'Mahen & Flynn, 2008). Known predictors of depression treatment among pregnant women include prior history of MDD, history of psychiatric treatment, and prenatal depression severity (Flynn, 2006), and perceived negative consequences of depressive symptoms.

Little is known about factors that contribute to low treatment rates among depressed women during the perinatal period. Reasons for not seeking treatment can be conceptualized as either practical barriers or psychological barriers. Practical barriers refer to factors that limit women's opportunity for receiving treatment, such as lack of transportation, high cost of treatment, or limited knowledge of treatment resources. Psychological barriers refer to factors that relate to women's motivations to engage in or seek out treatment when resources are available. These may include such factors as fears about seeking treatment, beliefs about the relative usefulness of treatment, or interpretation of depressive symptoms as spiritual or physical problems rather than psychological. Practical barriers to mental health treatment for pregnant women have been identified, including lack of insurance, availability of treatment resources, transportation, long wait time, and lack of childcare (Kopelman et al., 2008;

O'Mahen & Flynn, 2008; Scholle, Haskett, Hanusa, Pincus, & Kupfer, 2003). Interestingly, women in both low and high socioeconomic groups report great underutilization of treatment in pregnancy (O'Mahen et al., 2006), providing support for the argument that psychological factors also play a significant role in treatment decisions.

Depression screening interventions have been implemented to increase appropriate treatment use among pregnant women, with modest results. Depression screening combined with physician feedback has been found to improve treatment-seeking rates at one month follow-up when compared to screening alone (Flynn et al., 2006). However, even with improved utilization in screening interventions, the majority of women experiencing symptoms do not follow through with treatment recommendations (Flynn et al., 2006), further indicating that patients may be experiencing practical or psychological barriers currently unidentified in the literature.

Three levels of barriers are thought to influence the treatment-seeking decisions of women: systems-level barriers, individual practical barriers, and individual psychological barriers (see Figure 1). The current study will focus primarily on identifying psychological components of treatment; practical and systems-level components will be addressed by the larger overall research project in which the current study resides.



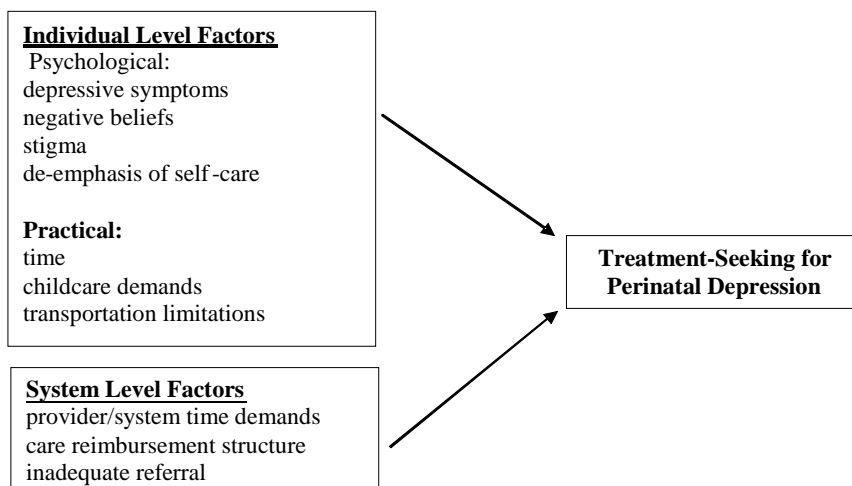


Figure 1. Levels of barriers associated with treatment-seeking.

### *Health Belief Model*

Little is known about the factors that contribute to women seeking mental health treatment during pregnancy; however, extensive work has been conducted within two broad, related areas of research: help-seeking behavior and health psychology. Many models have been proposed to explain help-seeking and health-protecting behaviors. The Health Belief Model (Becker, 1974; Janz & Becker, 1984; Rosenstock, 1966) is one of the most commonly used social-cognitive theories of health behavior. Using this as a theoretical framework, this study will explore psychological factors related to the decision to seek help for depression among a perinatal sample of women.

The Health Belief Model (HBM; Becker, 1974) hypothesizes that people are more likely to engage in a given health-related behavior to the extent that they (1) perceive that they could contract the illness or be susceptible to the problem (*perceived susceptibility*); (2) believe that the problem has serious consequences or will interfere with their daily functioning (*perceived severity*); (3) believe that the intervention or preventative action will be effective in reducing symptoms (*perceived benefits*); and (4) perceive few barriers to

taking action (*perceived barriers*). All four variables are thought to be influenced by demographic variables such as race, age, and socioeconomic status. A fifth factor, *cues to action*, was originally proposed as part of the HBM to address possible social influences related to help-seeking. Cues to action are broadly defined as incidents that bring an individual's attention to the severity or threat of an illness, which may range in form from private events, such as engaging in a conversation initiated by a physician or family member about noticed changes in mood, to public events, such as viewing a depression awareness campaign billboard identifying depression symptoms. In theory, these cues are thought to spur an individual to consider her susceptibility to the particular health threat being discussed, in this case, depression. The model proposes that multiple compelling cues to action will increase the likelihood that an individual will take action by seeking treatment. This component of the HBM has not been adequately tested for any health behavior and is rarely included in studies using the model. It will be included in this study of mental health treatment-seeking for depressive symptomatology.

Though the full HBM has not been widely applied to mental health help-seeking behaviors, many studies indicate that severity of symptoms, perceived benefits, and perceived barriers likely contribute to individuals' decisions to seek treatment for mental health concerns. A recent qualitative study involving focus groups of African American women with a depression diagnosis found that women's perceptions of the benefits, barriers, susceptibility, and severity of their depressive symptoms were reported to influence their attitude toward seeking professional help (Waite & Killian, 2008). These findings have many implications for practitioners and researchers seeking to increase the appropriate utilization of services among underutilizing populations. Within the model, three general approaches

can be used to increase appropriate utilization: increasing perception of the severity of symptoms, decreasing the perceived barriers to treatment, or increasing the perceived benefits of treatment (see Henshaw & Freedman-Doan, 2009, for review). A clearer understanding of whether the HBM accurately describes help-seeking in perinatal depression will likely contribute to more relevant and effective theory-based interventions to improve appropriate and timely treatment-seeking in this particularly vulnerable group.

#### *Strengths of the Health Belief Model*

The model's use of benefits and barriers opposing each other provides a dynamic representation of the decision-making process. In this "common sense" presentation, the impact of each positive aspect is considered in the context of the negative aspects. The model in this way provides a parsimonious explanation of a variety of constructs within one clear framework. The broad nature of the model, while presenting challenges for operationalizing constructs, provides researchers with a useful and adaptable tool for explaining behaviors.

Another strength of the HBM is its utility in developing interventions. A main tenet of cognitive-behavioral approaches to clinical psychotherapy is that cognitions are changeable in many instances. Therefore, socio-cognitive theory provides a useful focus for research that ultimately may result in programmatic change to benefit clients. Once developed, perception-change interventions can be evaluated through changes in observed professional help-seeking behaviors. While the HBM framework has not been adequately tested in the realm of mental health treatment-seeking, much of the existing literature on mental health treatment-seeking can be conceptualized as dimensions of severity, benefits, and barriers. Each construct in the model will be described as it relates to mental health treatment perceptions.

### *Perceived Susceptibility*

The HBM was originally designed as a model of preventative health behaviors; thus, the perceived susceptibility was defined as individuals' perceptions of how at risk they are for suffering from a particular illness in the future (e.g., risk for breast cancer). As originally conceptualized, this construct holds less relevance when assessing a current health problem such as current levels of depressive symptoms. However, self-reported history of postpartum depressive episodes strongly predicts risk for future postpartum episodes (Dennis & Ross, 2006), providing a measure of susceptibility to future depression of which women may be aware. It is reasonable to consider the possibility that pregnant women who report having had one or more previous episodes of depression may perceive themselves as more susceptible to developing more severe depressive symptoms than do pregnant women who report no previous episodes of depression, as evidenced by the relationship between previous depressive episodes and treatment use found in previous studies (Flynn, 2006). Thus, in this study, perceived susceptibility is defined as previous depression history.

### *Perceived Severity*

Not surprisingly, individuals are more likely to seek treatment if they perceive themselves as having more severe symptoms. Definitions of perceived severity vary from study to study, but mental health treatment-seeking has been predicted by self-report of mental health symptoms (Bovier, Chamot, Eytan, & Perneger, 2001), personal distress (Komiya, Good, & Sherrod, 2000), perceived need for mental health services (Green-Hennessy, 2002; Watkins et al., 2001), negative social consequences of the illness (Kaskutas, Weisner, & Caetano, 1997), and elevated scores on depression scales (Halgin, Weaver, Edell, & Spencer, 1987). Some evidence suggests that individuals' perceptions of severity of

depressive symptoms are developed independently from actual symptom severity as measured by self-report depression scales (O'Mahen et al., unpublished). Thus, symptoms of depression and the perceived severity of those symptoms should each be measured to determine independent relationships with treatment-seeking. In this study, perceived severity will be assessed through perceived impact of depressive symptoms on daily functioning.

Level of distress may also influence *where* individuals go to seek help. Consumer Reports' popular survey of more than 4,000 help-seekers found that individuals tend to see a primary care physician for less severe emotional distress and seek a mental health professional in cases of more severe distress (Consumer Reports, 1995). Similarly, Jorm, Griffiths, and Christensen (2004) found that individuals with mild to moderate depressive symptomatology were more likely to use self-help strategies, while those with severe depressive symptomatology were more likely to seek professional mental health services. Given the wide range of treatment options facing individuals, it is important to distinguish between formal mental health treatment for depression and informal treatment. *Formal* treatment in this study is defined as receiving help from a physician or mental health professional, as these are the two recommended treatment strategies receiving widespread support for alleviating depression symptoms in the perinatal period. These strategies are commonly assessed in studies of treatment utilization. However, less is known about other ways that women seek to alleviate their depression symptoms, such as talking with friends about depression or engaging in self-help psychoeducation about depression. These will be defined in this study as *informal* treatments, as the process of engaging in such treatment is in some ways less formal than seeking professional services. For example, they are less likely to require an appointment or significant time or monetary commitment, distinctions that may

influence whether women will seek informal over formal treatment when experiencing depressive symptoms. It is possible that women's perceptions of their symptoms and the benefits or barriers of treatment will impact whether they engage in formal or informal treatment more readily. This relationship has not been explored in other published studies, and it is unknown whether this relationship will be true for pregnant women experiencing depressive symptomatology.

Women experiencing depression during pregnancy may have additional factors weighing on how they perceive the severity of their symptoms. For example, when self-appraising whether depressive symptoms are severe enough to warrant seeking help, some pregnant women also may be considering whether their symptoms will affect their infant. In a recent study of specific beliefs predicting treatment-seeking, O'Mahen et al. (unpublished) found that endorsing the belief that "my symptoms will affect my relationship to my family" significantly predicted treatment-seeking among pregnant women, providing some indication that impact on family functioning, including the unborn infant, may be a primary concern to women who do seek treatment. Women who experience perinatal depression may also have different beliefs about the cause and expected course of their depression than women who experience depression outside of the context of pregnancy. Further research is needed to determine more clearly how pregnancy influences women's perceptions of depression severity and, in turn, how these perceptions impact treatment-seeking decisions.

Although perceived severity is an important predictor of help-seeking behavior, severe symptoms alone do not fully explain individuals' decisions to seek treatment. Among individuals who are experiencing distress and determine that action should be taken, professional mental health services may be one of *many* options for potentially relieving

depressive symptoms. In this research, we will also explore whether choosing to seek out a mental health professional is also determined by an individual's appraisal of the perceived benefits and risks of mental health treatment.

### *Perceived Benefits*

Broadly defined, perceived benefits of seeking professional mental health services are the individual's beliefs about how effective services will be in alleviating symptoms of psychological distress. Many factors are thought to shape an individual's attitudes toward mental health treatment, including beliefs about the cause of depressive symptoms, beliefs about treatment effectiveness, and previous experience with mental health providers (e.g., Alvidrez, 1999; Vogel, Wester, Wei, & Boysen, 2005).

Some support has been found for the importance of a match between individuals' perceptions of the cause of symptoms and the type of treatment they seek. In a national survey in Germany, perceptions about the cause of depression significantly predicted the preference for professional or lay help. Those who endorsed a biological cause of illness indicated that they would be more likely to advise an ailing friend to seek help from a psychiatrist, family physician, or psychotherapist, and less likely to advise seeking help from a confidant. Perceptions of social-psychological causes of illness, such as family conflict, isolation, or alcohol abuse, were related to advising help from a confidant, self-help group, or psychotherapist rather than a psychiatrist or physician (Angermeyer, Matschinger, & Riedel-Heller, 1999). Some explanations of mental illness may discourage treatment-seeking. For example, the belief that mental illness is caused by personal imbalance or lack of moderation in lifestyle has been related to avoiding mental health treatment (Alvidrez, 1999), as has the belief that individuals should solve their problems without help (Mansfield, Addis, &

Courtenay, 2005).

In addition to the match between etiology beliefs and help-seeking, an individual's beliefs about effectiveness of a treatment also have been found to predict help-seeking (Fox, Blank, Rovnyak & Barnett, 2001; Vogel, Wester, Wei, & Boysen, 2005). Public beliefs about the effectiveness of treatment may not always be accurate, however. For example, in a survey of the German public's opinions about what would be the most effective treatment for schizophrenia and depression, researchers found a disconnect between public beliefs about effective treatments and evidence-based treatment approaches by mental health practitioners. In the survey, 64.7% of the respondents recommended psychotherapy as a first choice treatment for schizophrenia, while only 14.7% recommended psychotropic drugs as a first choice treatment for this disorder, although psychotropic medications are more commonly considered the first choice of treatment among mental health professionals for this disorder (Riedel-Heller, Matschinger, & Angermeyer, 2005).

Jorm et al. (2000) conducted a postal survey of Australian adults to assess the relationship between beliefs about the helpfulness of depression interventions on coping behaviors when experiencing depression symptoms. The authors sent the survey to all individuals in an electorate area, totaling 8,000. The authors received 3,109 completed surveys, which included a vignette of a depressed individual, followed by a list of potential interventions for managing depression, ranging from professional treatments to activities and medicines. At the initial survey, individuals were assessed for general distress, asked to rank the helpfulness of the interventions, and individuals in the top quartile of reported symptoms were recontacted for a follow up questionnaire 6 months later. Using the same list of interventions, respondents identified any interventions they had tried in the past 6 months to



cope with stress, anxiety, depression, or other emotional problems. Results showed mixed support for the hypothesis that beliefs about effectiveness predicted treatment use. For some interventions, such as occasional drinking, perceived helpfulness was low (17%) but actual use was high (55% of respondents). Conversely, counseling was rated as helpful by 93% of individuals in the original survey, yet only 14% of follow-up respondents reported seeing a counselor. Similar patterns of results were seen for psychotherapy. Interestingly, less formal interventions were most frequently endorsed at follow-up, including physical activity and alcohol. More formal interventions such as psychotherapy and antidepressants were used less frequently.

While the authors do not discuss the role of barriers to each intervention, the response patterns indicate that the application of the HBM to this or similar studies might enhance understanding of the dissonance between beliefs about and use of interventions. When accounting for both perceived benefits and perceived barriers to engaging in a particular behavior, it is possible that individuals view formal interventions as more beneficial but also as requiring more effort to initiate than informal interventions. Informal interventions, defined as those that do not require a scheduled visit to a mental health professional, may be viewed as less helpful but easier to implement than formal methods. Thus, according to the HBM, both the barriers and benefits are important components of the decision-making process.

Perceptions of the effectiveness of mental health treatment and the benefits of treatment appear to be greater among individuals who have already experienced contact with a mental health service provider. Individuals are more likely to view treatment positively if they have had a personal experience with previous therapy, an informal contact with a

therapist, or vicarious experience with mental health professionals through the treatment of a friend or family member (Figueroa, Calhoun, & Ford, 1984). Interestingly, positive attitudes toward psychotherapy are related to prior therapy regardless of prior therapy outcome (Surgenor, 1985), perhaps because previous therapy allows clients to know what to expect from therapy, decreasing treatment fears and misconceptions (Bram, 1997). This relationship between previous treatment history and current treatment use has been found among perinatal samples as well (Flynn, 2006).

### *Perceived Barriers*

Even if an individual views mental health treatment as potentially beneficial, these benefits may be overshadowed by perceived risks or barriers to seeking professional help. As described earlier, barriers can be conceptualized as either practical or psychological. In this study, variables related to practical barriers will be accounted for, such as socioeconomic status and insurance coverage. However, the primary interest of the current study is the impact of psychological barriers on treatment-seeking in order to test the utility of the HBM for pregnant women. The more comprehensive study of the interaction of practical and psychological barriers on treatment-seeking is planned for future research with this population. Previous research indicates that treatment-seeking rates are low among women of both high and low socioeconomic status, and remain low even when initial psychotherapy sessions are offered at no cost following depression screening for women without insurance coverage (Flynn, O'Mahen, Massey, & Marcus, 2006; O'Mahen et al., 2006). These findings provide support for the role of psychological barriers in preventing treatment-seeking during the perinatal period. Individual perceptions of the risks involved with seeking mental health treatment vary, but several qualitative studies of women's experiences with perinatal

depression suggest that stigma associated with depression, particularly around pregnancy, significantly impacts women's decisions about seeking help (Holopainen, 2002; McIntosh, 1993).

Stigma, in a variety of forms, has been identified as a significant barrier to mental health treatment-seeking in pregnancy (Amankwaa, 2003; Holopainen, 2002; Ugarriza, 2004). Two forms of stigma have been identified as significant for mental health behaviors: self-stigma and perceived stigma (Corrigan & Watson, 2002). Self-stigma is proposed to be a result of internalizing societal stigma messages about mental health, such that individuals may perceive themselves as weak for seeking therapy or ashamed of depressive symptoms. Perceived stigma encompasses a person's beliefs about how others view mental illness.

Perceived stigma may be especially powerful in influencing treatment-seeking for perinatal depression. Lack of accurate public knowledge about perinatal depression may contribute to a common misunderstanding of the difference between postpartum blues and major depressive episode for women experiencing symptoms as well as their social supports. Women experiencing severe depressive symptoms may be receiving messages from others that they are experiencing nothing more than the "blues" and should be able to resolve these feelings on their own without treatment (McIntosh, 1993; Templeton, Velleman, Persaud, & Milner, 2003). Highly publicized incidents of infanticide linked to postpartum psychosis may also be an explanation for many women's reported fears that seeking treatment would result in losing custody of their children (McIntosh, 1993). Fears about being labeled mentally ill and fears of the reactions of others to women's self-disclosure about depression have been suggested by some women as significant barriers to seeking help for perinatal depressive symptoms (Holopainen, 2002; Templeton et al., 2003; Ugarriza,

2004). Thus, perceived stigma is expected to be a significant part of the perceived barriers component of the HBM for perinatal depression.

Self-stigma describes feelings of inadequacy or weakness associated with viewing oneself as mentally ill. A dissonance between happy feelings new mothers expect to experience following pregnancy and actual experiences of depression may lead some women to conclude that depression implies an inability to perform their expected role as a mother (Ugarriza, 2004). Two different pilot studies for perinatal depression interventions found that women's tendencies to minimize depressive symptoms and expressed reluctance to label their experiences as depression hindered recruitment significantly (Currie & Develin, 2002; Ugarriza, 2004). The relationship between depression treatment and perceived self-stigma and social stigma has not been fully explored in a perinatal sample but appears to be a significant factor in treatment-seeking decisions.

#### *Cues to Action*

Cues to action are broadly defined as social “cues” that prompt an individual to reflect on her current health state, in this case, her current depressive symptomatology. Cues to action can include public health messages concerning mental illness, other media such as magazine articles about postpartum depression, or conversations with healthcare providers, friends, or coworkers about the need to seek treatment. In theory, these cues to action can influence an individual's perception about the severity of her symptoms or the barriers and benefits of treatment. The cues to action construct of the HBM promises to provide a wealth of information for the development of systems-level programming and public health interventions; however, this component of the model has received very little attention and is routinely ignored in applications of the model. This construct may pose the greatest challenge

for researchers hoping to operationalize it or manipulate it in a meaningful but controlled manner.

Though little research has tested this theory directly, some evidence suggests that cues to action may contribute to individuals' decisions to seek mental health treatment. In a recent study of individuals who had been referred for mental health appointments by their primary care physician, comparisons were made between those who had kept and had not kept their initial appointment (Reust, Thomlinson, & Lattie, 1999). Through structured interviews, researchers assessed why patients kept or did not keep their appointment, patients' perceptions of their provider, perceptions about mental health, and the information given to them about the referral process. The authors found that those who kept their appointments were significantly more likely to acknowledge that they had a problem and to list another person—family member, physician, or friend—as being a motivating force in keeping their appointment. Indicating another person as motivating or encouraging treatment can be conceptualized as a cue to action for depression treatment. Viewed in this way, conversations with a healthcare provider, friend, or spouse may call one's attention to symptoms. However, beyond Reust et al.'s study, which utilized a small sample ( $n = 36$ ), little additional research support is currently available, indicating that further exploration is necessary to determine the role of cues to action on mental health treatment-seeking. The current study will address the role of social cues to action in women's treatment decision-making processes. Perinatal depression screening as part of routine obstetric care has been evaluated as a potential cue to treatment-seeking for pregnant women; however, results have not provided support for this as an effective stand-alone intervention (Schade, Jones, & Wittlin, 1998). Moreover, when screening is combined with conversations about depression

with a physician, it has related to a modest short-term increase in mental health treatment-seeking (Flynn et al., 2006). Thus, some cues to action may be more influential on depression treatment-seeking than others; this research preliminarily suggests that personal conversations with others may be associated with increased treatment-seeking. No studies were found that addressed the impact of media cues to action on mental health treatment. The combined impact of media information and conversations with physicians, friends, and family as potential cues to action is unknown and will be addressed in this study.

### *Interventions*

One strength of focusing on models explicating attitudes and perceptions related to treatment-seeking is the clinical utility of such models. At the basis of all cognitive-behavioral approaches to therapy is the assumption that beliefs are malleable. By identifying attitudes that may inhibit appropriate help-seeking, psychologists can then use research findings to develop interventions for addressing maladaptive attitudes or inaccurate beliefs about mental health treatment and mental illness.

### *Summary*

Several studies have identified variables related to mental health treatment-seeking attitudes such as stigma, treatment fears, previous treatment experience, and attitudes toward psychotherapists (e.g., Bram, 1997; Komiya et al., 2000; Kushner & Sher, 1989), thus providing apparent support for the HBM. However, the majority of studies within this topic area are limited by use of *attitudes* toward therapy as a proxy for *actual* help-seeking behavior. While psychological barriers to treatment have been explored in hypothetical help-seeking questionnaires, it is possible that actual help-seeking behaviors such as asking a family physician for a mental health referral or scheduling a first appointment over the phone

may actually present a different set of perceived barriers for individuals. Thus, the utility of the HBM as a model of mental health treatment-seeking is currently unknown. In this study, actual mental health treatment-seeking was assessed, including a continuum of treatment-seeking options from informal methods, such as speaking with a friend or reading a book about depression, to formal methods, such as meeting with a mental health professional.

Further, the cues to action component of the HBM has received very little attention in most empirical tests of the model, with so few studies addressing the component that the most prominent reviews of the HBM (Harrison, Mullen, & Green, 1992; Janz & Becker, 1984) did not find enough studies including the component to warrant inclusion in the review. This study provides the first exploration of the cues to action component of the HBM among a perinatal sample, a critical component to the future development of interventions for perinatal depression.

Among perinatal samples, research suggests that some aspects of depression treatment decisions are similar to non-pregnant groups. Specifically, stigma, previous treatment experience, previous depressive episodes, and severity play an important role in decision-making. However, some aspects of depression within the perinatal period indicate that help-seeking may look different in some ways than in other groups. Thus, specific pregnancy-related depression beliefs were assessed in this study to provide further understanding of any unique factors associated with seeking mental health treatment while pregnant. Overall, in this study, the relationship between the five components of the HBM and mental health treatment-seeking behaviors were evaluated among pregnant women in a medical setting.

### *Current Study*

Most people experiencing clinically significant psychological distress do not seek formal mental health treatment. This is also true among women who report depression during pregnancy. Improved treatment and outcomes for depression during pregnancy could prevent negative birth outcomes linked to depression in mothers during and after the pregnancy. Thus, the study of influences on women's mental health treatment decisions during pregnancy is a critical public health issue that is not well understood at the present time. This study adds to the literature by exploring the psychological components of mental health help-seeking among pregnant women with elevated depressive symptoms.

The study involved screening women in their second or third trimester of pregnancy for elevated depressive symptoms. In a baseline survey, women at risk for depression were surveyed regarding their perceptions of depression and its treatment. Mental health treatment-seeking has traditionally been defined as a visit to a mental health professional; however, it is likely that many women engage in more informal treatments for their depressive symptoms. Thus, in the current study, we expanded this view to include both *formal* treatment-seeking, as traditionally defined, as well as *informal* treatment-seeking such as reading a self-help book, searching for information online, or speaking with a trusted friend or family member. Current use of informal and formal treatment interventions was assessed to determine how perceptions of depression and its treatment predicted treatment-seeking for depression in pregnancy.

### *Primary Aims and Hypotheses*

The primary goal of this study was to determine which components of the Health Belief Model significantly predicted formal and informal treatment-seeking for perinatal



depressive symptoms.

*Hypothesis 1.* Five components of the HBM (susceptibility, severity, benefits, barriers, and cues to action) would significantly predict formal and informal treatment-seeking behaviors. Specifically, it was expected that endorsing high levels of perceived susceptibility, severity, and benefits, positively-rated cues to action, and low levels of perceived barriers would positively predict reported treatment-seeking behaviors. This conceptual model is presented in Figure 2.

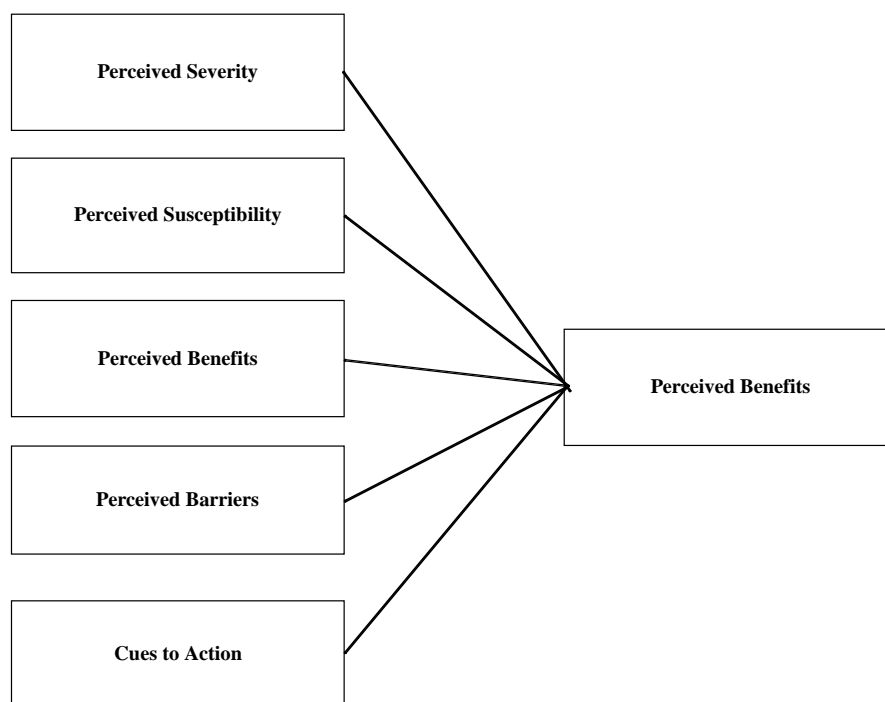


Figure 2. Hypothesized application of HBM to treatment seeking.

*Hypothesis 2.* Alternative models of the HBM were explored to determine if a moderation model better explains perinatal help-seeking behaviors. Specifically, it was hypothesized that perceived barriers would moderate the relationships between perceived severity, perceived benefits, and treatment-seeking. In this alternative model, perceived susceptibility and cues to action were thought to influence treatment-seeking indirectly

through influence on perceived severity and perceived benefits of treatment. It was proposed that higher levels of severity might only relate to higher levels of treatment-seeking in the presence of low treatment barriers (see Figure 3). Similarly, it was hypothesized that high levels of perceived benefits only predict high levels of treatment-seeking in the presence of low levels of barriers. When perceived barriers are high, it was expected that the relationship between perceived benefits and treatment-seeking would be less pronounced.

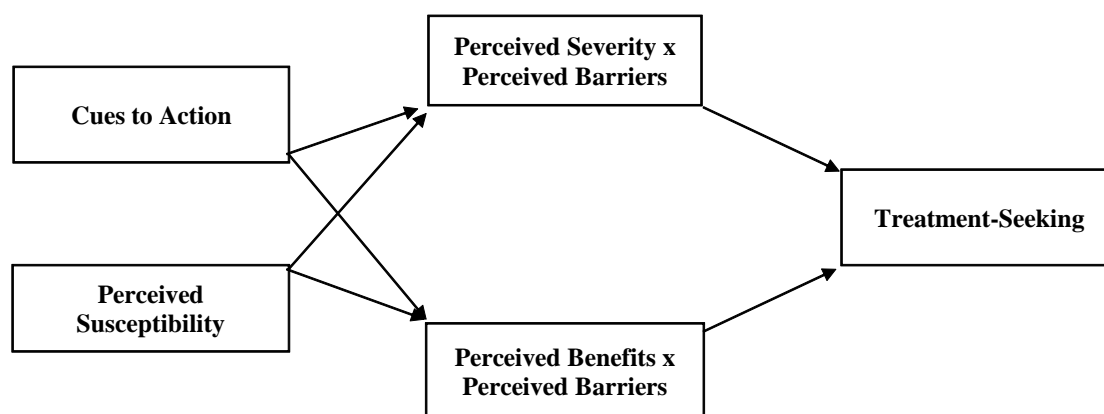


Figure 3. Hypothesized moderating HBM model of treatment-seeking

*Analysis plan.* Data were screened for missing data, errors, and significant outliers. Missing data were analyzed to determine if it was random or if significant patterns existed. Missing data were addressed through substituting means. Before testing hypotheses, initial analysis of the data included descriptive statistics, psychometric properties of all scaled measures, and zero-order correlations between all variables. Assumptions of normality, linearity, and homoscedasticity multiple regression were assessed in the data to determine the appropriateness of multiple regression analyses. All measures were transformed to standardized scores before conducting bivariate analyses and multiple regression. Bivariate scatter plots and standardized residual plots were evaluated to test the assumptions of

linearity and homoscedasticity. For each hypothesized model, multiple regressions were conducted to determine which predictors significantly contribute to variance in formal treatment-seeking. To test for the moderating model described in Hypothesis 2, Aiken and West's (1991) recommended procedure for creating interaction terms was used. Two separate interaction terms were created according to the model. The interaction between perceived severity scale and perceived barriers was calculated (severity x barriers) as well as the interaction between perceived benefits and perceived barriers (benefits x barriers). In the regression analysis, each variable was entered independently, followed by the interaction variables.

*Power analysis.* Assuming a medium effect size, Cohen (1992) suggests that a multiple regression using 6 independent variables will require a sample of at least 97 women. Green's (1991) more conservative regression formula for medium effects of individual predictors requires  $N > 104 + m$ , where  $m$  is the number of independent variables. Thus, it was calculated that a sample of 110 participants was sufficient to detect a medium effect.

## METHOD

### *Recruitment*

Participants in this study were 110 pregnant women recruited from the waiting rooms of five multi-provider obstetrics clinics in southeast Michigan. Two university hospital affiliated clinics were selected, serving a primarily suburban population of women. Three branches of a community health care clinic were also selected, representing a non-profit organization providing healthcare for underserved individuals in an urban area. Both university and community clinics conducted regular depression screening and treatment referral for women reporting elevated depressive symptoms and indicating an interest in depression treatment. The ethnic and socioeconomic characteristics of the urban and suburban samples are representative of the populations from which they were drawn (Table 1), with the exception that women living below the poverty line and African American women are overrepresented in the sample compared with the population of the urban area.

Table 1

*Comparison Between Demographics in Current Study Sample and General Population of Recruitment Regions*

	Urban		Suburban	
	Sample	Population	Sample	Population
White	25.5	41.4	75	74.7
African American	72.2	53.3	14.8	8.8
Completed high school	76.19	74.5	93.9	95.7
Completed bachelor's degree or higher	11.43	11.3	54.06	69.3
Income below poverty	72.85	26.4	16.66	16.6

*Note.* Population estimates based on 2000 U.S. Census for each city in Michigan.

All women attending regularly scheduled OB/GYN appointments during weekly recruitment periods were approached by research assistants between March 2007 and August 2008. The study was described to potential participants as a research study of mood and pregnancy. All pregnant, English-speaking women aged 18 or older were eligible for the initial screening. All women who agreed to participate reviewed an informed consent document with a research assistant that described the methods used in the study, all potential risks of participation, and methods of contacting the primary researcher (see Appendix A). Women signed the informed consent and completed a contact information sheet along with the brief screening questionnaire. Women were presented with a copy of the informed consent to keep for their records. Confidentiality was maintained by the use of study code numbers and the separation of identifying information and survey responses. Identifying information was linked to study code numbers in one locked cabinet separated from survey responses. All study procedures were approved by the University of Michigan Medical School Institutional Review Board and Eastern Michigan University Institutional Review Board (see Appendix B).

Among the 1217 women approached, 88.58% agreed to participate. Some women were excluded because they were less than 18 years old and others because they did not speak English fluently. Due to the combination of obstetric and gynecology services provided in each clinic, a large number of women who agreed to participate were excluded because they were not pregnant. Women who refused to participate in screening (n = 139) were asked to voluntarily provide their age, race, and reason for refusal. This information was kept anonymous and recorded in order to compare refusers to women who agreed to screening. Reasons for refusal and exclusion are listed in Table 2. The most frequently cited

reasons for refusal were a lack of interest in participating or a lack of time to complete study screening.

Table 2  
*Reasons for Refusal and Ineligibility*

	n	%
Reasons for refusal		
Not interested	73	52.52
No time	33	23.74
Hostile to invasion of privacy	12	8.63
Other	10	7.19
Too ill	7	5.04
Too much paperwork	4	2.88
Reasons for Ineligibility		
Under age 18	48	7.38
Not pregnant	457	75.54
Non-English speaking	11	1.82
Already completed survey	89	14.71

Table 3 summarizes racial differences in participation rates. There was a significant association between race (White or African American) and willingness to participate in the research  $\chi^2 (1) = 7.79, p < .01$ . Based on the odds ratio, White women were 2.24 times more likely than African American women to participate.

Table 3  
*Rates of Participation by Race*

Race	Agreed		Refused	
	n	%	n	%
White	237	92	20	8
African American	190	84	36	16
Hispanic	10	77	3	23
Arab American	4	67	2	33
Asian American	12	55	10	45
Other	4	100	0	0

*Note*. Individuals who refused to participate were asked to give anonymous demographic information voluntarily.

Pregnant women who consented to participate (n = 473) were screened for depressive symptoms using the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). Demographic information was also collected during the screening process, including questions about education, employment, marital status, socioeconomic status, and race. Women who endorsed elevated levels of depressive symptoms (EPDS  $\geq$  12) and agreed to be contacted were asked to participate in the study.

#### *Procedures*

Women with elevated depressive symptomatology (n = 159) were mailed a pencil-and-paper self-report survey, along with a pre-addressed stamped envelope to return the survey to the researcher. The mailed survey included 75 items consisting of measures chosen to represent the constructs of the Health Belief Model: perceived susceptibility (previous episodes of depression), perceived severity (Illness Perceptions Consequences Scale), perceived benefits (single-item rating of perceived treatment benefits), perceived barriers (Self-Stigma of Seeking Help and Stigma Scale for Receiving Psychological Help), and cues to action (inventory of frequency and influence of social cues to action). The survey was estimated to take approximately 30 minutes to complete. Participants were instructed to complete the survey and return it using the envelope provided at any point within 2 weeks of the initial screening. Participants were contacted via email or telephone to encourage return of survey materials. Women were reimbursed \$10.00 for the completion of the survey. Money orders were mailed to each woman within 1 week of completion. A response rate of 69.81% resulted in 111 women completing surveys by August 2008. Figure 4 summarizes the recruitment and data collection process.

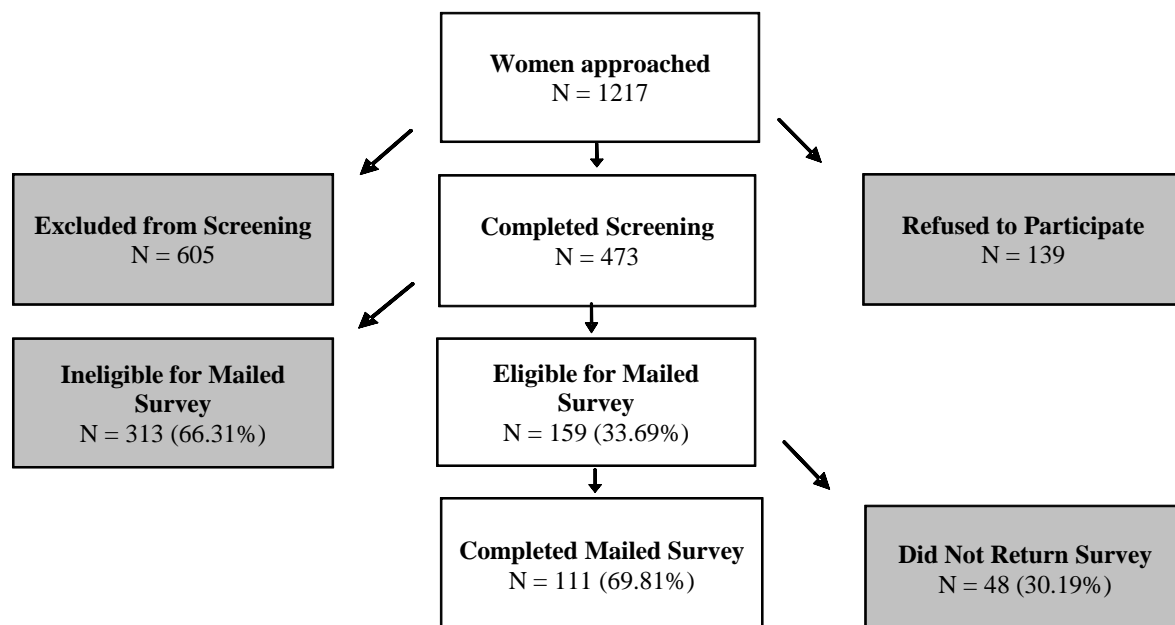


Figure 4. Recruitment procedures and response rates.

### Participants

In Table 4, demographic characteristics of women who were screened for depression but did not meet depression risk criteria (non-risk sample;  $n = 348$ ) are presented along with characteristics of the depression risk sample of interest (depression risk sample;  $n = 111$ ). Comparisons were made between the non-risk sample and depression risk sample. T-tests were completed when appropriate; otherwise, Chi-Square analyses were used. On average, participants in the depression risk sample were significantly younger than non-depression risk participants [ $t(457) = -4.33, p < .001$ ]. All other demographic statistics are located in the table.

On average, participants in the depression risk sample reported significantly less education than did participants in the non-risk sample [ $t(407) = 6.22, p < .001$ ; non-risk sample  $M = 3.19$  ( $SD = 1.30$ ); depression risk sample  $M = 2.32$  ( $SD = 1.01$ )]. Significant differences were found between the depression risk and non-risk samples in employment



status [ $\chi^2 (3) = 21.03, p < .001$ ]. Odds ratio indicates that participants in the depression risk sample were 1.92 times as likely to report being currently unemployed. Significant differences were found between the depression risk and non-risk samples in marital status [ $\chi^2 (4) = 60.59, p < .001$ ]. Odds ratio indicates that participants in the depression risk sample were 8.26 times as likely to be unmarried. No significant differences were found between depression risk and non-risk samples in percentage of participants living alone, with children, or with others. On average, participants in the depression risk sample reported significantly lower yearly incomes than did participants in the non-risk sample [ $t (381) = 7.25, p < .001$ ; non-risk  $M = 3.62, SD = 1.93$ ; depression risk sample  $M = 2.07, SD = 1.38$ ]. No significant racial differences were found between the non-risk and depression risk samples.

Table 4  
*Demographic Characteristics of Sample*

	Non-depressed sample (n =310 )		Depression risk sample(n = 111)	
	%	n	%	n
<b>Education<sup>†</sup></b>				
Some high school	10.82	33	25.00	26
High school graduate	23.28	71	31.70	33
Some college	22.95	70	31.00	32
College graduate	22.30	68	11.50	12
Beyond college	20.66	63	1.00	1
<b>Employed<sup>†</sup></b>				
No	30.97	96	48.10	50
Part time	17.10	53	16.30	17
Full time	40.32	125	17.30	18
Student	11.61	36	18.30	19
<b>Marital Status<sup>†</sup></b>				
Married	51.99	157	17.80	19
Live-in partner	24.17	73	41.10	44
Divorced	9.60	29	2.80	3
Separated	5.30	16	7.50	8
Not in a relationship	8.94	27	30.80	33
<b>Household</b>				
Living alone	3.64	11	3.90	4
Alone with children	7.95	24	14.40	15
Living with others	88.41	267	81.70	85
<b>Yearly Income<sup>†</sup></b>				
< 9,999	21.60	62	51.00	49
10,000--19,999	12.54	36	17.80	17
20,000--39,999	16.03	46	14.50	14
40,000--59,999	10.80	31	8.40	8
60,000--79,999	10.45	30	6.30	6
>80,000	28.57	82	2.00	2
<b>Location</b>				
Urban	37.82	118	58.20	64
Suburban	62.18	194	41.80	46
<b>Racial/Ethnic Distribution<sup>†</sup></b>				
White/Caucasian	55.29	183	50.90	56
African American	29.00	96	41.81	46
Hispanic/Latina	7.25	24	5.45	6
Asian or Pacific Islander	3.62	12	1.82	2
American Native	1.51	5	9.00	1
Arab American	1.21	4	9.09	1
Other	2.11	7	2.72	3

*Note.* Missing data for each category varied. Percentages reflect valid percent of completed responses.

<sup>†</sup> Indicates significant differences between depressed and non-depressed sample. See text for details.

## Measures

All survey measures and sample items are listed in Table 5. Psychometric properties of survey measures are summarized in Table 6.

Table 5

*Description of Measures*

Construct	Measure	Values
<b>Covariates</b>		
Demographics	Age, weeks pregnant, health insurance type, number of children, race/ethnicity, marital status, income, education, and current work status.	
Depressive Symptoms	Edinburgh Postnatal Depression Scale. Assesses depressive symptoms over the past 7 days. (10 items)	0--30
Previous Treatment	Ever sought treatment in lifetime?	y/n
<b>Predictors</b>		
Perceived Susceptibility	Number of Past Depressive Episodes	0--3
Perceived Severity	Illness Perceptions Questionnaire: Consequences Subscale. Perceptions of the daily life interference of current depressive symptoms (25 items)	1--5
Perceived Benefits	How likely is it that that treatment would help you?	1--5
	If I begin treatment for depression, I would have (more/same/less) problems with my mood, health, infant than I do now. (4 items)	1--3
Perceived Barriers	Self-Stigma of Seeking Help (10 items)	1--5
	Stigma Scale for Receiving Psychological Help (5 items)	0--3
Cues to Action	Cues to Action Inventory. In past 3 months, how often have you read magazine, saw commercial, heard from with coworker, friends, family about depressive symptoms? If used, how positively did this influence you to seek treatment? (10 items)	1--3
<b>Outcomes</b>		
Treatment Use	Informal Mental Health Utilization. In the past 3 months, how often did you address depression through books, internet, family, friends, or community leader? (5 items)	1--5
	Formal Mental Health Utilization. In the past 3 months, how often did you speak with a medical provider or mental health professional about depression? (2 items)	1--5

Table 6  
*Internal Consistency Reliabilities and Descriptive Statistics for Questionnaire Measures*

Variable	# items	M	%	SD	Range		$\alpha$
					Low	High	
EPDS	10	15.12		2.94	12	25	0.44
Previous treatment use <sup>a</sup>	1		57.30		0	1	
Previous depressive episodes	2	2.08		1.17	0	3	
Perceived severity	23	2.59		0.65	1	4	0.93
Treatment beliefs	3	7.31		1.60	3	9	0.82
Self-stigma	10	23.14		6.17	10	38	0.75
Others' stigma	5	5.44		3.11	0	13	0.72
Cues to action	10	5.58		3.90	0	16	0.78

<sup>a</sup>Percent reporting any use of treatment in lifetime.

### *Depressive Symptoms*

*Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987).*

Assessment of depression among perinatal samples must account for somatic symptoms (e.g., changes in sleep and eating patterns) that may be attributed to physiological changes involved in pregnancy rather than depression. Use of traditional depression screening tools for perinatal samples risks a higher rate of false positive identification of elevated depression. The EPDS was originally developed to account for such differences through assessment with less emphasis on somatic symptoms than standard depression screening tools (see Appendix C for complete measure). Originally designed for postpartum depression, it has since been validated in prenatal samples (Murray & Cox, 1990). The most widely used screening tool for post-partum depression (Boyd, Le, & Somberg, 2005), the EPDS has been translated into a variety of languages and has been reviewed favorably in several instances when compared to other perinatal depression assessments (e.g., Boyd, Le, & Somberg, 2005; Gaynes et al., 2005). The EPDS includes 10 items on a 4-point scale assessing depressive symptoms over the past 7 days. Total scores range from 0 to 30. Using a cut-off score of 12, the EPDS has

been found to have sensitivity of .50 and specificity of .90 for minor and major depression (Gaynes et al., 2005; Adouard et al., 2005).

Among the 473 women screened for this study, the mean EPDS score was 9 (SD =6, range 0-27). Approximately one third (33.7%) of women scored  $\geq 12$  and were eligible for the study. Among those eligible (n = 159), the mean EPDS score was 15.42 (SD=3.20, range 12-27). Those who completed the mailed survey (n = 111) reported EPDS scores with a mean of 15.00 (SD=3, range 12-25). Internal consistency for the scale was low (alpha = .44) in this study, but this is to be expected when measuring variable symptomatology among a diverse sample of participants.

### *Demographics*

Several demographic variables previously have been found to relate significantly to mental health help-seeking, and so these relationships were analyzed and significant predictors are controlled for in the hypothesized model. Participants were asked to report their age, estimated number of weeks pregnant, health insurance type (private, Medicare/Medicaid, or no insurance), number of children, and race/ethnicity. Additionally, participants reported their marital status (married, living with partner, divorced/widowed/separated, single, or in a relationship but not living together), income (yearly estimated household), education level, and current work status (working full time, part time, unemployed, student). All items are listed in Appendix D.

### *Treatment History*

*Previous Treatment.* Previous use of psychotherapy or medication for depression has consistently predicted current or future use of treatment in a variety of studies (de Figueiredo, Boerstler, & Doros, 2006; Flynn, 2006). Therefore, in the current model, previous treatment

was assessed through a yes/no item: “Have you ever sought any kind of treatment (antidepressant, therapy) for depression and/or anxiety in your life?” Approximately 57% of women reported seeking some form of treatment in their lifetime.

### *Perceived Severity*

*Modified Illness Perceptions Questionnaire-Revised Consequences Subscale (IPQ;* Weinman, Petrie, Moss-Morrin, & Horne, 1996). The IPQ was originally designed to assess domains of the Self-Regulation Model of health behavior decision-making (Leventhal, Nerenz, & Steele, 1984). The original IPQ has demonstrated good discriminant and predictive validity (Moss-Morris et al., 2002). The Consequences subscale assesses self-reported perceptions of the severity and daily life interference of current depressive symptoms. Each item includes a statement (e.g., *My symptoms are part of a serious condition*) with which participants are asked to agree or disagree on a scale from 1 (strongly disagree) to 5 (strongly agree). In a recent application of the IPQ to mental illness among a depressed perinatal population, O’Mahen et al. (unpublished) modified the IPQ to include perceptions related to pregnancy-specific aspects of depression (e.g., *My symptoms will harm my baby*). The 25 items are totaled to create one score ranging from 25 to 125. Higher scores indicate that women perceived more negative consequences associated with their depressive symptoms. This modified version of the IPQ Consequences subscale has been found to have good internal consistency ( $\alpha = .81$ ) and to predict treatment use within a perinatal sample.

Based on reliability and factor analyses, two items were removed from the scale: *If I take medication for my symptoms it will hurt my baby*, and *Having these symptoms means that I am weak*. The remaining scale included 23 items, with high internal consistency ( $\alpha = .93$ ).

### *Perceived Susceptibility*

*Depression History.* As described previously in the introduction of this study, perceived susceptibility is conceptualized as an individual's perception of whether she may be at risk for a depressive episode. Others have conceptualized this construct as the willingness to accept a diagnosis of depression (Becker & Maiman, 1980). In addition, self-reported previous depressive episodes have been found in previous studies to predict current treatment use for perinatal depressive symptoms (Flynn et al., 2006). For these reasons, the current study assessed perceived susceptibility as participants' self-reported estimate of previous depressive episodes. Depression history was assessed through two items. The first item read, "Has there ever been a period, at any point in your life, where you felt depressed, irritable, or lost interest in pleasurable activities and had some of the symptoms listed above nearly every day for a period of at least 2 weeks?" to which women responded yes or no. Women who positively endorsed this item were asked to respond to a second question, "During your entire life, how many episodes like that have you had?" These variables calculated together created a single measure with a score of 0 to 3, with 0 representing women who reported no depressive episodes in their past, to 3, representing women who reported 3 or more past depressive episodes. Women reported a mean score of 2.08, indicating that on average, women experienced two episodes of depression in their lifetime.

### *Perceived Benefits*

*Treatment Beliefs.* Beliefs about the benefits of seeking treatment for depression were assessed through a 4-item measure asking participants to report their expectations about the consequences of seeking treatment for depression. This scale was developed by the Flynn research group to briefly assess beliefs about the probable impact of treatment on an



individual's functioning, including her functioning as a mother, noted in the item, *If I enter treatment for depression I will have [more, about the same, less] problems with my baby as I have now*. For the 4 items, women were asked to describe which statement best describes their current beliefs about depression treatment: (e.g., *If I enter treatment for depression I will have [more, about the same, less] troubles than I have now* on a three-point scale (1 = more, 2 = about the same, 3 = less). Total scores range from 4 to 12. Higher scores indicate more positive expectations of treatment benefits. Reliability and validity data are not currently published for this measure but were calculated in this study. The predictive validity of these four items was compared to that of a single, 5-point item asking individuals to describe their current beliefs about treatment, ranging from 1 (*no way any treatment will help me*) to 5 (*treatment would definitely help me*). Because the reliability of the 4 items was weak and the single item captured more of the variance in treatment-seeking when compared to the 4-item scale, the single 5-point item was used in the main hypotheses. This was compared with analyses in which all five items were entered into an exploratory factor analysis, described in the next section.

### *Perceived Barriers*

Perceived psychological barriers were measured in two ways: self-stigma and social stigma of seeking mental health treatment. Self-stigma is a construct addressing individuals' negative self-perceptions about seeking treatment for mental health issues. It has been shown to predict help-seeking intentions and help-seeking behaviors successfully (Vogel, Wade, & Haake, 2006). Social stigma, a related, but separate, construct, is defined as individuals' perceptions of what others think about those who seek mental health treatment. Perceived social stigma has also been correlated with attitudes toward seeking professional help

(Komiya et al., 2000).

*Self-Stigma of Seeking Help* (SSOSH: Vogel, Wade, & Haake, 2006). The SSOSH is a 10-item measure designed to assess self-stigma associated with seeking help. For each item, individuals are asked to rate the extent to which they agree or disagree with statements about seeking help (e.g., *It would make me feel inferior to ask a therapist for help*) on a scale from 1 (strongly disagree) to 5 (strongly agree). Several items are reverse-scored, creating a total score ranging from 10 to 50, with higher scores indicating more stigma beliefs associated with seeking help. The measure has shown good internal reliability ( $\alpha = .91$ ), and good construct and criterion validity. In the current study, internal consistency was found to be lower, but still within the acceptable range ( $\alpha = .75$ ).

*Social Stigma for Receiving Psychological Help* (SSRPH; Komiya et al., 2000). The SSRPH scale is a 4-item measure designed to assess perceptions of public stigma associated with mental health treatment utilization. Individuals are asked to rate the extent to which they agree with statements such as *People will see a person in a less favorable way if they come to know that he/she has seen a psychologist* on a scale from 0 (strongly disagree) to 3 (strongly agree). Items are totaled to create a score from 0 to 12, with higher scores reflecting more perceived stigma from others regarding treatment-seeking. Internal consistency in previous studies has been found to range from .73-.76. Similarly, in this study, internal consistency (Cronbach's alpha) was .72, within an acceptable range.

#### *Cues to Action*

*Cues to Action Inventory*. Due to the paucity of research on the cues to action construct at the time of this research review, no measures of cues to action have been published. The Cues to Action Inventory was developed for the current study as an

exploratory measure of Cues to Action in help-seeking behavior. The measure began with the statement, *In the past 3 months, please rate whether you have encountered any of these situations*. Five different cues to action were developed: being approached about symptoms by friends or family, coworkers, or physician, watching a commercial or news program about depression, or reading a brochure or other materials regarding depression.

The measure consisted of two components: incident frequency and incident influence. First, participants were asked how frequently they had encountered each cue to action such as watching a news program about depression or being addressed by a coworker about their depressive symptoms. A sample of one of the 10 items is, *My coworker has spoken with me about my depressive symptoms*. Responses ranged from 0 (*never*), 1 (*once*), to 2 (*more than once*). Participants who endorsed each type of incident were then asked to rate the influence of the incident on their treatment decisions. A sample of one of the 10 items is *How did this [conversation with coworker] influence your decision to seek or not seek treatment?* Respondents endorsed one of five possible responses: 1 (strongly discouraged treatment); 2 (somewhat discouraged treatment); 3 (no effect); 4 (somewhat encouraged treatment); or 5 (strongly encouraged treatment).

Originally, it was proposed that two scores would be calculated: the combined frequency and strength of influence of positive cues to action (*somewhat or strongly encouraged treatment*) and the combined frequency and strength of influence of negative cues to action (*somewhat or strongly discouraged treatment*). Due to the lack of negatively influential cues to action (n = 2), these cases were dropped and influence of positive cues to action was re-calculated as follows: no influence = 0 (originally coded 3); somewhat encouraged treatment = 1 (originally coded 4); and strongly encouraged treatment = 2

(originally coded 5).

For each type of cue to action, the frequency of the event and positive influence of the event were combined to create one score with a range from 0-4 (e.g., if item *My coworker has spoken with me about my depressive symptoms* = 1 (*once*), and item *How did this [conversation with coworker] influence your decision to seek or not seek treatment?* = 2 (*strongly encouraged treatment*), then the total score would be 3). Frequency/influence scores ranged from 0 (never spoke with me, no influence) to 4 (spoke with me about it more than 3 times and strongly encouraged treatment-seeking). The five cues to action scores were then summed to create the total Cues to Action Inventory (range from 0-20).

#### *Factor Analysis*

Exploratory factor analysis was conducted to determine the relationships of each variable to the hypothesized latent constructs of benefits, barriers, susceptibility, severity, and cues to action. All variables were entered into the analysis. Assuming intercorrelation between the constructs, an oblimin rotation was used. Inspection of the eigenvalues and scree plot, in conjunction with the theoretical basis of the HBM factors, yielded a three-factor model. The completed factor loadings are listed in Appendix K. In total, the three factors followed the theoretical bases for the HBM constructs fairly well. The first factor, Susceptibility and Severity, represented the Previous Episodes item along with the majority of the IPQ consequences subscale items. Eighteen items loaded on this factor, and item loadings ranged from .84 to .49. The second factor, Barriers and Benefits, represented both self- and social stigma of seeking help, along with beliefs about treatment (negatively loaded due to the positive phrasing of benefits items). Eighteen items loaded on this factor, and item loadings ranged from .70 to .42. One item, *Having these symptoms means that I am an unfit*

*mother*, loaded at the .40 level on both Severity and Susceptibility and on Barriers and Benefits. This makes theoretical sense, given the overlap between perceived consequences of this item (potential harm to infant) and the perceived stigma of this belief (I am crazy or weak, or others will look down on me). The third factor, Cues to Action, included all of the cues to action inventory variables with the exception of the items related to having a coworker or supervisor address depressive symptoms. The resulting factor included 8 items, with item loadings ranging from .72 to .46. Three scales were created using the items loading for each factor, and reliability was calculated for each, showing good internal consistency for all three scales. In addition to originally hypothesized scales, the relationships between these 3 broad factors and outcome measures will be explored in the next section.

In the absence of available validated measures of informal and formal treatment-seeking, the following sets of items were developed to assess both professional mental health treatment-seeking and informal mental health treatment-seeking. The questionnaire began with the statement *These questions pertain to the last 3 months*. Each individual form of treatment use was analyzed separately.

#### *Formal Help-Seeking*

Formal help-seeking was defined as seeking help from a trained professional in the medical or mental health profession.

*Help-Seeking from Medical Provider.* Help-seeking was measured by a single item, *How frequently have you spoken to a medical provider (nurse, doctor, etc) about your mood (depression)?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

*Help-Seeking from Mental Health Professional.* Help-seeking was measured by a single item, *How frequently have you spoken to a mental health professional about your*

*mood (depression)?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

#### *Informal Help-Seeking*

*Help-Seeking from Friends.* Respondents were asked, *How frequently have you spoken to a friend(s) about your mood (depression)?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

*Help-Seeking from Family.* Respondents were asked, *How frequently have you spoken to someone in your family about your mood (depression)?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

*Help-Seeking from Internet.* Respondents were asked, *How frequently have you accessed internet sites pertaining to information about depression?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

*Help-Seeking from Printed Material.* Respondents were asked, *How frequently have you read printed (e.g. pamphlet, books, magazines) information about depression?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

*Help-Seeking from Community or Religious Leader.* Respondents were asked, *How frequently have you spoken to a community leader (minister, school administrator, community liaison) about your mood (depression)?* Responses ranged from 1 (*never*) to 5 (*constantly*) in the past 3 months.

#### *Missing Data*

Data were entered separately by different research assistants into two databases, and responses were compared to ensure accurate entry. Following the cleaning of the data, all missing data were identified. Variables missing between 5-10% of data were checked to determine if missing data occurred at random. To do this, dummy variables were created to

compare the missing data group to the non-missing data group. These two groups were compared using a t-test for the outcome variables (treatment-seeking). One variable was found to have significant differences in formal treatment-seeking, so this item was dropped from the perceived benefits scale (Perceived Benefits item #4: If I enter treatment for depression, I will have more/the same/less problems with my baby). Within each scale, missing data were addressed by calculating scale means without the missing variable. Cases with significant missing data were dropped ( $n = 1$ ). The data for the remaining 110 participants were checked for outliers by creating standardized z-scores for all scales and outcomes variables. Z-scores of 3 or higher were considered outliers (Mertler & Vanatta, 2002). No outliers were found for main variables; therefore, 110 participants were kept.

## RESULTS

### *Description of Outcomes*

The primary outcomes of interest are the frequency with which participants have sought formal and informal sources of help for depressive symptoms. Formal sources include mental health professionals and medical professionals such as nurses or obstetricians. Informal sources include clergy, friends, family, internet resources, and printed materials. Respondents were asked to estimate how often they had used each form of support on a Likert scale (1 = never, 5 = constantly) in the past 3 months. Data are summarized in Table 7. Family was reported as the most frequently used sources of support, with 80.9% of individuals reporting at least occasional use of this resource. Friends and printed material were also highly utilized informal sources of support. Among formal sources, more women reported seeking help from a medical provider than from a mental health professional.

Table 7  
*Frequency of Help-Seeking from Formal and Informal Sources*

	% Reporting any use	Mean <sup>a</sup>	SD
Family	80.90	2.71	1.23
Printed material	73.60	2.26	0.96
Friends	70.60	2.41	1.21
Medical provider	63.60	2.18	1.16
Mental health professional	46.40	1.87	1.12
Internet	30.00	1.46	0.71
Clergy	24.50	1.37	0.72

<sup>a</sup>Responses ranged from 1 = “never” to 5 = “constantly.”

Originally planned analyses included evaluating each form of help-seeking in terms of frequency of use (1-5 scale). Given the multiple ways to analyze the formal and informal help-seeking variables, several exploratory analyses were conducted to determine if results



would differ if the outcome was represented dichotomously, continuously, or in aggregate form. Results remained the same when each item was evaluated as a dichotomous outcome (no use versus any use) using logistic regression. Further, creating dichotomous outcomes for each type of informal and formal use, then combining them to sum across types of help, did not yield any difference in results. Results also remained the same when all continuous outcomes were combined to form one outcome. Therefore, results are presented for all seven outcomes separately as measured continuously (1-5 scale).

### *Bivariate Correlations*

#### *Demographics and Predictors*

Among predictors and demographic variables, several significant correlations were found (Table 8). Age positively correlated with treatment beliefs, such that older women reported more positive treatment beliefs than did younger women. Age also positively correlated with cues to action, with older women reporting more frequent and influential cues to action than did younger women. Level of education negatively correlated with self-stigma associated with seeking help, indicating that women reporting higher levels of education endorsed fewer self-stigma beliefs than did women with lower levels of education. Additionally, number of weeks pregnant negatively correlated with EPDS score, such that women further along in pregnancy reported fewer depressive symptoms than did women early in the stages of pregnancy. Racial differences were found in number of depressive episodes and perceived severity of symptoms, such that White women reported more depressive episodes over a lifetime and perceived these symptoms as having more severe consequences than did African American women.

Table 8  
Bivariate Correlations of Predictor Variables and Demographic Variables (n = 110)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Predictor variables</b>	--													
1. EPDS														
2. Treatment beliefs	-.09	--												
3. Self-stigma	.05	-.46 ***	--											
4. Others' stigma	.04	-.28 **	.51 ***	--										
5. Cues to action	.25 *	.35 ***	-.07	.06	--									
6. Perceived severity	.32 ***	.15	.08	.29 **	.37 ***	--								
7. Previous episodes	.21 *	.34 ***	.02	.06	.43 ***	.48 ***	--							
<b>Demographic variables</b>														
8. Age	-.13	.34 ***	-.14	.11	.26 *	.07	.12	--						
9. Weeks pregnant	-.20 *	-.05	-.06	.04	-.18	-.11	-.17	-.04	--					
10. Number of children	.03	.12	.01	.06	.02	.12	.10	.34 ***	-.13	--				
11. Education	-.08	.06	-.15 *	.04	.13	-.13	.03	.37 ***	.19	-.15	--			
12. Race <sup>a</sup>	.08	-.13	.07	-.01	-.10	-.10	-.20 *	-.19 *	.03	.23 *	-.14	--		
13. Income	.03	.17	-.04	-.02	.00	.03	.01	.40 ***	.01	-.15	.30 **	-.37 ***		
14. Insurance <sup>b</sup>	.14	.15	-.06	.06	.19	.01	.14	.09	-.08	-.07	.10	-.20 *	.18	
15. Relationship status <sup>c</sup>	-.05	.07	-.01	.11	.16	.03	.16	.16	.04	-.02	.28 **	-.19 *	.21 *	-.07

Note. N ranged from 99 to 110 for individual correlation pairs.

<sup>a</sup>1=African American, 0 = White <sup>b</sup>1 = Private insurance, 0 = Medicaid <sup>c</sup>1=Married or living with partner, 0 = not <sup>d</sup>1=Urban, 0=Suburban

\*p<.05 \*\*p<.01 \*\*\*p<.001

### *Demographics and Outcomes*

Several demographic variables significantly correlated with outcome variables (Table 9). Older women were more likely to report seeking help from printed materials, friends, medical providers, and mental health professionals than were younger women, and White women were more likely to report use of mental health professionals and internet sites than were African-American women. Further, women who reported previous lifetime treatment use were more likely to report seeking help from printed material, family, friends, medical providers, and mental health professionals in the past 3 months than were women who did not report previous lifetime use. Three predictor variables—age, race, and previous treatment—were found to correlate significantly with both informal and formal treatment-seeking. Therefore, these variables are controlled for in subsequent regression analyses.

Table 9  
*Bivariate Correlations of Demographic Variables by Outcomes*

	Printed Material	Internet	Family	Friends	Clergy	Medical Provider	Mental Health Professional
Previous treatment	.21 *	.17	.33 **	.21 *	.11	0.5 ***	.57 ***
Age	.25 **	.11	.16	.23 *	.18	.23 *	.29 **
Weeks pregnant	.12	-.07	.04	.16	-.12	-.07	-.15
Number of children	.04	-.16	.00	.05	.11	.02	.07
Education	.32 ***	.22 *	.01	.06	.07	.02	-.03
Race <sup>a</sup>	-.13	-.23 *	-.17	-.15	.05	-.16	-.19 *
Income	.08	.10	.08	.18	-.06	-.01	.00
Insurance <sup>b</sup>	-.17	.10	-.01	.00	.10	.10	.13
Relationship status <sup>c</sup>	.17	.26 **	.17	.05	.02	.01	.03

*Note.* N ranged from 99 to 110 for individual correlation pairs.

<sup>a</sup>1=African American, 0 = White. <sup>b</sup>1 = Private insurance, 0 = Medicaid <sup>c</sup>1=Married or living with partner, 0 = not.

\*p<.05 \*\*p<.01 \*\*\*p<.001

### *Predictors and Outcomes*

Correlations between hypothesized predictors and outcomes are in Table 10. Informal and formal treatment use were highly positively correlated with Treatment Beliefs, Cues to Action, Perceived Severity, and Previous Episodes. Women who perceived their depressive symptoms as having more negative consequences, who reported more prior episodes of depressive symptoms, who perceived treatment as being more likely to be beneficial, and who experienced more social cues regarding their depressive symptoms were more likely to engage in use of both types of mental health help than were women who reported fewer episodes, less severe perceived consequences, less endorsement of treatment benefits, and fewer social cues to action.

### *Three-Factor Model Outcomes*

Based on the exploratory factor analysis that revealed a 3-factor solution of Severity & Susceptibility, Barriers & Benefits, and Cues to Action, bivariate correlations between these constructs and formal treatment outcomes were explored (Table 11). Significant positive relationships were found between Severity & Susceptibility, Cues to Action, and both formal outcomes (speaking with a mental health professional and speaking with a medical provider). Barriers & Benefits did not significantly correlate with either outcome.

Table 10  
Bivariate Correlations of Predictor and Outcome Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
Predictors													
1. EPDS													
2. Treatment beliefs	-.09	--											
3. Self-stigma	.05	-.46 ***	--										
4. Others' stigma	.04	-.28 **	.51 ***	--									
5. Cues to action	.25 *	.35 ***	-.07	.06	--								
6. Perceived severity	.32 ***	.15	.08	.29 **	.37 ***	--							
7. Previous episodes	.21 *	.34 ***	.02	.06	.43 ***	.48 ***	--						
Outcomes													
8. Printed material	.05	.16	-.00	-.01	.50 ***	.28 **	.24 *						
9. Internet	.05	.13	-.07	-.05	.47 ***	.14	.06	.42 ***					
10. Family	-.02	.32 ***	-.11	.09	.48 ***	.34 ***	.32 ***	.24 *	.35 ***				
11. Friends	.08	.23 *	-.02	.05	.40 ***	.21 *	.21 *	.38 ***	.23 *	.54 ***			
12. Clergy	.02	-.05	.09	.06	.36 ***	.08	.06	.32 ***	.49 ***	.23 *	.25 **		
13. Medical provider	.13	.34 ***	-.13	-.04	.49 ***	.34 ***	.33 ***	.38 ***	.44 ***	.46 ***	.40 ***	.42 ***	
14. Mental health professional	.08	.40 ***	-.06	.07	.43 ***	.31 ***	.32 ***	.31 ***	.33 ***	.41 ***	.31 ***	.45 ***	.70 ***

\*p<.05 \*\*p<.01 \*\*\*p<.001

Table 11

*Bivariate Correlations of 3-Factor Model and Formal Treatment Outcomes*

	Severity & Susceptibility	Barriers & Benefits	Cues to Action	Mental Health Professional	Medical Provider
Severity & Susceptibility	--				
Barriers & Benefits	0.19 *	--			
Cues to Action	0.35 ***	-0.08	--		
Mental Health Professional	0.32 ***	-0.07	0.51 ***	--	
Medical Provider	0.35 ***	-0.13	0.62 ***	0.70 ***	--

\*p&lt;.05 \*\*p&lt;.01 \*\*\*p&lt;.001

### *Hypothesis 1*

Hypothesis 1 indicated that Previous Episodes, Perceived Severity, Treatment Beliefs, and Cues to Action would significantly predict frequency of formal and informal treatment use after controlling for known demographic predictors (Previous Treatment, Age, Race, and EPDS).

#### *Formal Treatment*

Multiple regression analyses were conducted separately for each type of formal treatment use: discussion of symptoms with nurse or physician and discussion of symptoms with a mental health professional. Previous Treatment and Cues to Action significantly predicted both outcomes, such that having previous treatment experiences and experiencing frequent influential cues to action predicted the frequency of speaking with a medical or mental health provider about depressive symptoms. In addition, treatment beliefs significantly positively predicted seeking help from a mental health professional (Tables 12 and 13).



Table 12

*Hierarchical Multiple Regression for Variables Predicting Help Seeking from Mental Health Professional (n = 110)*

	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>			
Age	0.12	0.10	0.10
Race	-0.05	0.18	-0.02
EPDS	0.11	0.09	0.10
Previous treatment	1.21	0.19	0.54 ***
<b>Step 2</b>			
Age	0.05	0.09	0.05
Race <sup>a</sup>	-0.08	0.17	-0.04
EPDS	0.01	0.09	0.01
Previous treatment	0.89	0.21	0.40 ***
Self-stigma	0.16	0.10	0.14
Others' stigma	0.01	0.10	0.01
Previous episodes	-0.06	0.10	-0.05
Perceived severity	0.08	0.10	0.07
Treatment beliefs	0.22	0.11	0.20 *
Cues to action	0.33	0.10	0.29 ***

Note.  $R^2 = .35$  for Step 1;  $R^2\Delta = .13^{**}$ .

<sup>a</sup>African American = 1; White = 0.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Table 13  
*Hierarchical Multiple Regression for Variables Predicting Help Seeking from Medical Provider*

	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>			
Age	0.11	0.10	0.09
Race	-0.04	0.20	-0.02
EPDS	0.16	0.10	0.14
Previous treatment	1.10	0.21	0.47 ***
<b>Step 2</b>			
Age	0.08	0.10	0.07
Race <sup>a</sup>	-0.03	0.19	-0.02
EPDS	0.03	0.10	0.02
Previous treatment	0.77	0.22	0.33 ***
Self-stigma	0.11	0.11	0.10
Others' stigma	-0.10	0.11	-0.09
Previous episodes	-0.01	0.11	-0.01
Perceived severity	0.18	0.11	0.16
Treatment beliefs	0.09	0.12	0.07
Cues to action <sup>b</sup>	0.35	0.10	0.31 ***

Note.  $R^2 = .28$  for Step 1;  $R^2\Delta = .14^{**}$ .

<sup>a</sup>African American = 1; White = 0. <sup>b</sup>Medical Provider items were

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

### *Informal Treatment*

Multiple regression analyses were conducted separately for each type of informal treatment use: discussion of symptoms with friends, family members, or community leaders; and seeking depression information from printed media and the internet. In each analysis, a similar pattern emerged: cues to action predicted use of every source of informal treatment. Help-seeking from clergy, family, and friends was predicted solely by cues to action. Reading printed information was predicted by age (older participants were more likely to report seeking printed material than younger participants) and cues to action. Finally, accessing internet sites for information about depression was negatively predicted by previous episodes of depression and positively predicted by cues to action. No difference was found for any outcome when analyzed as a dichotomous variable using logistic regression. Further, all outcomes (both informal and formal treatment) were analyzed as summed dichotomous variables. The same pattern emerged: cues to action significantly positively predicted the outcome, and no additional variables were significant.

Table 14  
*Hierarchical Multiple Regression for Variables Predicting  
 Help Seeking from Clergy (n = 110)*

	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Age	0.12	0.07	0.17
Race	0.16	0.14	0.11
EPDS	0.02	0.07	0.03
Previous treatment	0.14	0.15	0.10
Step 2			
Previous treatment	0.07	0.16	0.05
Age	0.12	0.07	0.17
EPDS	-0.06	0.07	-0.09
Race <sup>a</sup>	0.14	0.13	0.10
Self-stigma	0.09	0.08	0.12
Others' stigma	0.00	0.08	-0.01
Previous episodes	-0.03	0.08	-0.04
Perceived severity	-0.05	0.08	-0.06
Treatment beliefs	-0.14	0.08	-0.19
Cues to action	0.36	0.07	0.50 ***

Note .  $R^2 = .05$  for Step 1;  $R^2\Delta = .23^{**}$  .

<sup>a</sup>African American = 1; White = 0.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Table 15  
*Hierarchical Multiple Regression for Variables Predicting Help Seeking from Family (n = 110)*

	<i>B</i>	<i>SE B</i>	$\beta$
<b>Step 1</b>			
Age	0.06	0.12	0.05
Race	-0.19	0.24	-0.08
EPDS	-0.01	0.11	-0.01
Previous treatment	0.74	0.25	0.30 **
<b>Step 2</b>			
Previous treatment	0.18	0.26	0.07
Age	-0.06	0.12	-0.05
EPDS	-0.18	0.11	-0.15
Race <sup>a</sup>	-0.13	0.22	-0.05
Self-stigma	-0.14	0.13	-0.11
Others' stigma	0.18	0.13	0.15
Previous episodes	0.06	0.13	0.05
Perceived severity	0.24	0.13	0.20
Treatment beliefs	0.17	0.14	0.13
Cues to action	0.38	0.12	0.31 **

Note.  $R^2 = .12$  for Step 1;  $R^2\Delta = .20^{**}$ .

<sup>a</sup>African American = 1; White = 0. Social Cues items were removed from Cues to Action scale.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Table 16  
*Hierarchical Multiple Regression for Variables Predicting Help Seeking from Friends (n = 110)*

	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Age	0.23	0.12	0.18
Race	-0.21	0.24	-0.09
EPDS	0.13	0.11	0.11
Previous treatment	0.33	0.25	0.13
Step 2			
Previous treatment	-0.04	0.28	-0.01
Age	0.18	0.13	0.15
EPDS	0.01	0.12	0.01
Race <sup>a</sup>	-0.22	0.23	-0.09
Self-stigma	0.07	0.14	0.06
Others' stigma	-0.02	0.14	-0.02
Previous episodes	0.00	0.14	0.00
Perceived severity	0.12	0.14	0.10
Treatment beliefs	0.11	0.15	0.09
Cues to action	0.36	0.13	0.29 **

Note.  $R^2 = .09$  for Step 1;  $R^2\Delta = .11^*$ .

<sup>a</sup>African American = 1; White = 0. Social Cues items were removed from Cues to Action scale.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Table 17  
*Hierarchical Multiple Regression for Variables Predicting Help Seeking from Printed Material (n = 110)*

	<i>B</i>	<i>SE B</i>	$\beta$
Step 1			
Age	0.19	0.10	0.19 *
Race	-0.10	0.19	-0.05
EPDS	0.07	0.09	0.07
Previous treatment	0.31	0.20	0.16
Step 2			
Previous treatment	0.05	0.20	0.03
Age	0.19	0.09	0.20 *
EPDS	-0.09	0.09	-0.09
Race <sup>a</sup>	-0.07	0.17	-0.04
Self-stigma	0.05	0.10	0.05
Others' stigma	-0.08	0.10	-0.08
Previous episodes	0.03	0.10	0.03
Perceived severity	0.15	0.10	0.15
Treatment beliefs	-0.12	0.11	-0.12
Cues to action	0.44	0.09	0.46 ***

Note.  $R^2 = .09$  for Step 1;  $R^2\Delta = .22^{***}$  .

<sup>a</sup>African American = 1; White = 0.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Table 18

*Hierarchical Multiple Regression for Variables Predicting Help Seeking from Internet (n = 110)*

Step 1			
Age	0.04	0.08	0.05
Race	-0.31	0.16	-0.20
EPDS	0.06	0.07	0.07
Previous treatment	0.17	0.16	0.11
Step 2			
Previous treatment	-0.05	0.17	-0.03
Age	0.00	0.08	0.01
EPDS	-0.02	0.07	-0.03
Race <sup>a</sup>	-0.35	0.14	-0.23
Self-stigma	-0.01	0.08	-0.01
Others' stigma	-0.02	0.08	-0.03
Previous episodes	-0.15	0.08	-0.20
Perceived severity	0.04	0.08	0.05
Treatment beliefs	0.00	0.09	0.00
Cues to action	0.42	0.08	0.54 ***

Note.  $R^2 = .08$  for Step 1;  $R^2\Delta = .23^{***}$  .

<sup>a</sup>African American = 1; White = 0.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$



### *Hypothesis 2*

The second hypothesis proposed that stigma may moderate the relationship between treatment beliefs and use of formal sources of help as well as the relationship between perceived severity and use of formal sources of help. Hierarchical multiple regression analyses were conducted for each outcome (use of medical provider and use of mental health professional). For each analysis, all predictor variables were centered on the mean. Interaction terms were created for treatment beliefs x combined stigma, as well as for perceived severity x combined stigma. For both models, stigma was not found to significantly moderate either treatment beliefs or perceived severity (Table 13). Analyses were also conducted exploring the separate moderating effects of self-stigma and social stigma on perceived severity and treatment beliefs, and no significant results were found in any case.

Table 19

*Summary of Hierarchical Regression Analyses for Variables and Moderators Predicting Frequency of Help-Seeking from Medical Provider or Mental Health Professional*

Variable	Physician <sup>b</sup>			Mental Health Practitioner <sup>c</sup>		
	B	SE B	$\beta$	B	SE B	$\beta$
<b>Step 1</b>						
Previous treatment	0.95	0.23	.41 ***	1.08	0.20	.50 ***
Age	0.16	0.11	.14	0.16	0.10	.15
Race	-0.01	0.22	-.00	-0.10	0.20	-.05
<b>Step 2</b>						
Previous treatment	0.64	0.25	.28 **	0.82	0.22	.37 ***
Age	0.10	0.11	.09	0.06	0.10	.06
Race	-0.01	0.21	-.04	-0.11	0.19	-.05
Barriers <sup>d</sup>	-0.02	0.12	-.01	0.11	0.11	.10
# Episodes	0.04	0.12	.04	0.00	0.11	-.00
Perceived severity	0.14	0.12	.12	0.05	0.11	.05
Treatment beliefs	0.07	0.14	.06	0.28	0.13	.25 *
Cues to action	0.33	0.11	.28 **	0.22	0.10	.20 *
<b>Step 3</b>						
Previous treatment	0.64	0.25	.28 **	0.82	0.22	.38 ***
Age	0.11	0.11	.10	0.08	0.10	.08
Race	-0.01	0.21	-.01	-0.12	0.19	-.05
Barriers	-0.01	0.12	-.01	0.12	0.10	.11
Previous episodes	0.04	0.12	.04	0.00	0.11	.00
Perceived severity	0.14	0.12	.12	0.06	0.11	.05
Treatment beliefs	0.07	0.14	.06	0.25	0.13	.22 *
Cues to action	0.34	0.12	.29 **	0.24	0.10	.21 *
Severity x Barriers	0.04	0.11	.03	0.13	0.10	.11
<b>Step 4</b>						
Previous treatment	0.66	0.25	.29 **	0.83	0.22	.38 ***
Age	0.10	0.11	.09	0.08	0.10	.07
Race <sup>a</sup>	-0.02	0.21	-.01	-0.12	0.19	-.06
Barriers	-0.02	0.12	-.01	0.12	0.11	.11
Previous episodes	0.04	0.12	.04	0.00	0.11	.00
Perceived severity	0.15	0.12	.13	0.06	0.11	.06
Treatment beliefs	0.05	0.15	.04	0.24	0.13	.22
Cues to action	0.33	0.12	.28 **	0.24	0.10	.21 *
Severity x Barriers	0.05	0.11	.04	0.14	0.10	.12
Beliefs x Barriers	-0.05	0.11	-.05	-0.04	0.10	-.03

<sup>a</sup>African American = 1; White = 0. <sup>b</sup> $R^2 = .23$  for Step 1;  $r^2\Delta = .12^*$  for step 2;  $r^2\Delta = .00$  for step 3;  $r^2\Delta = .00$  for step 4. <sup>c</sup> $R^2 = .31$  for Step 1;  $r^2\Delta = .10^*$  for step 2;  $r^2\Delta = .01$  for step 3;  $r^2\Delta = .00$  for step 4.

<sup>d</sup>Barriers variable includes combined self- and others' stigma.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

### *Exploratory Analysis Using Factor Analysis Scales*

Hypotheses 1 and 2 were also conducted utilizing the three broad constructs that emerged from the exploratory factor analysis (see Methods). It was believed that using these consolidated constructs, a different pattern may emerge in the multiple regression analysis. However, very similar results were found when using these constructs compared to the original scales. Cues to Action and previous treatment predicted both forms of formal mental health treatment (Table 20).

Table 20

*Summary of Hierarchical Regression Analyses Utilizing 3-Factor Model Predicting Frequency of Help-Seeking from Medical Provider or Mental Health Professional*

Variable	Physician <sup>b</sup>			Mental Health Practitioner <sup>c</sup>		
	B	SE B	$\beta$	B	SE B	$\beta$
Step 1						
Age	0.11	0.10	0.09	0.12	0.10	0.10
Race	-0.04	0.20	-0.02	-0.05	0.18	-0.02
EPDS	0.16	0.10	0.14	0.11	0.09	0.10
Previous treatment	1.10	0.21	0.47 ***	1.21	0.19	0.54 ***
Step 2						
Age	0.06	0.09	0.05	0.09	0.09	0.08
Race	-0.04	0.17	-0.02	-0.04	0.17	-0.02
EPDS	-0.01	0.09	-0.01	-0.01	0.09	-0.01
Previous treatment	0.60	0.20	0.26 **	0.91	0.20	0.41 ***
Susceptibility and Severity	0.20	0.14	0.11	0.13	0.14	0.08
Benefits and Barriers	-0.14	0.16	-0.06	0.04	0.16	0.02
Cues to Action	0.84	0.15	0.47 ***	0.56	0.15	0.32 ***

<sup>a</sup>African American = 1; White = 0. <sup>b</sup> $R^2 = .28$  for Step 1;  $r^2\Delta = .21^*$  for step 2. <sup>c</sup> $R^2 = .35$  for Step 1;  $r^2\Delta = .10^*$  for step 2.

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

## DISCUSSION

### *Summary of Results*

Originally, it was hypothesized that five variables based on the Health Belief Model (perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and cues to action) would predict help-seeking from informal and formal sources alike. In sum, the most consistent finding was that Cues to Action significantly predicted all forms of help-seeking except for seeking help from family. Previous Treatment, which has been found in other studies to predict use of formal treatment sources (physicians and mental health professionals) was found to be a significant predictor of both formal treatment sources in this study as well. Table 21 summarizes the significant findings within each form of treatment-seeking. Theoretical, research, and practice implications of these findings will be discussed, and limitations of the research and suggested future research in this area will conclude this discussion.

### *Hypothesis 1*

Hypothesis 1 indicated that Previous Episodes, Perceived Severity, Treatment Beliefs, and Cues to Action would significantly predict frequency of formal and informal treatment use after controlling for known demographic predictors (Previous Treatment, Age, Race, and EPDS). Frequency of speaking with a mental health professional was significantly positively predicted by previous treatment, cues to action, and treatment beliefs. Frequency of speaking with a physician was significantly positively predicted by previous treatment and cues to action. Frequency of speaking with clergy was significantly negatively predicted by race and positively predicted by cues to action. Frequency of speaking with family was not

significantly predicted by any one variable. Frequency of speaking with friends was significantly positively predicted by cues to action only. Frequency of utilizing printed material was significantly positively predicted by cues to action only. Frequency of accessing depression information from the internet was significantly positively predicted by cues to action and previous episodes.

### *Hypothesis 2*

The second hypothesis proposed that stigma may moderate the relationship between treatment beliefs and use of formal sources of help as well as the relationship between perceived severity and use of formal sources of help. Stigma was not found to significantly moderate either treatment beliefs or perceived severity.

Table 21

*Summary of Significant Relationships Between Help-Seeking and Psychological Factors*

	Frequency of Help-Seeking						
	Mental Health Professional	Physician	Clergy	Family	Friends	Printed Material	Internet
1. Known Predictors	Previous Treatment	Previous Treatment	Race (-)				
2. Health Belief Predictors	Cues to Action Treatment Beliefs	Cues to Action	Cues to Action		Cues to Action	Cues to Action	Cues to Action Previous Episodes

## *Implications of Findings*

### *Theoretical Implications*

The Cues to Action construct included items such as “I saw a news program or read a magazine article about depression,” and “A coworker or supervisor spoke with me about my depressive symptoms.” The items comprising this construct imply a social influence, with the individual taking a passive role and receiving information from others regarding her symptoms. Other variables in the model refer to the individual perceptions and beliefs that a woman holds herself. These personal schemas about illness (e.g., I would feel inadequate if I went to a therapist for psychological help, Treatment will definitely help me, My symptoms have strongly affected the way I see myself as a person) represent internalized views of illness and treatment. The significance of the cues to action measure being related to seeking treatment, then, may lie in the potential impact of social influence on women’s decision-making around depression treatment. Many models of treatment-seeking and health-related decision-making assume a rational choice model based on an individual’s perceptions, such as the Health Belief Model, the Theory of Planned Behavior (Ajzen, 1991), and the Self-Regulation Model (Leventhal, Nerenz, & Steele, 1984). Other models focus on social support (e.g., Cramer, 1999) as a mediator of help-seeking behavior. The main difference is that rather than focusing on social support in general, Cues to Action represent a support for depression treatment, specifically. The findings of this study suggest that the specific type of social support and influence embodied in the Cues to Action construct may be an important factor to incorporate into future models of mental health help-seeking.



Perceived severity has been found previously to significantly predict treatment-seeking among perinatal samples (O'Mahen, unpublished). In this study, perceived severity did not predict treatment-seeking in the presence of the cues-to-action variable. One interpretation is that cues to action may serve as a *validation* of a women's perceived severity, such that women have their beliefs about their felt depression confirmed by others regarding the significance and severity of their symptoms. For example, a woman who is approached by co-workers, friends, and her physician regarding her symptoms may be more likely to endorse a perceived severity belief such as "my symptoms are part of a serious condition" than would women whose symptoms have not been directly addressed by others.

*Utility of the Health Belief Model for Mental Health.* Should we then discard the HBM as a useful model to explain mental health-seeking? On the one hand, little support was found for the overall model, even when the cues-to-action variable was not included. This may indicate that the general premise of the rational choice model is not as good a fit for mental health decision-making as it is for other health-related decisions. Certainly, one could argue that there is a qualitative difference in the process of buckling a seatbelt, wearing sunscreen, or completing a yearly physical and the process of seeking psychotherapy or speaking with friends and family about mental illness.

On the other hand, there are several reasons to use caution in discarding the Health Belief Model based on these results. First, and most obviously, this was a brief, retrospective, self-report study with a specific sample of pregnant women with depressive symptoms. The limitations of this research are great (see next section) and clearly not representative of all mental health treatment-seeking. Further, the constructs of the Health Belief Model are intentionally broad and flexible, which serves as both a benefit and a limitation to studies of

its application to a variety of health behaviors. In this study, constructs were interpreted to focus specifically on psychological barriers and benefits, not addressing perceived practical barriers (e.g., “It would be too much trouble to find childcare if I sought treatment”). Another study with more inclusive interpretations of the HBM constructs might find that barriers both practical and psychological play a significant role in the overall model. Recent research within this population suggests that when identified together, practical barriers are more often reported as significantly hindering treatment-seeking (Flynn et al., 2008). The limitations of this study, including the specificity of the sample and the lack of standardized measures of the HBM for mental health treatment-seeking, all suggest that additional research is needed to explore the full utility of the HBM for mental health treatment.

The results of this study do suggest that alternative models to the rational choice approach should be considered, particularly those models that address social or system-level influences on mental health treatments. For example, Pescosolido, Brooks-Gardner, and Lubell (1998) utilized the Network-Episode Model (NEM) of help-seeking (Pescosolido, 1992) as a framework for exploring clients’ pathways to seeking care. The NEM, in contrast to the HBM’s premise of rational, individual choice of treatment, focuses on social influences on care-seeking and hypothesizes that clear independent choice is only one of several ways that clients enter treatment. The NEM describes two other pathways to care: coercion, and “muddling through,” which is best described as a passive, indirect pathway to treatment based on a combination of referrals, personal choice, and coercion. The authors’ most relevant finding is that fewer than half of the narratives they analyzed from individuals who sought help included a clear decision on the part of the individual to seek treatment. The study included a greater percentage of severe mental illness than do most other help-

seeking research reviewed for this study, which could influence the number of stories including coercion and “muddling through.” However, despite these limitations, this study highlights an assumption within the HBM—that treatment-seeking is a conscious, independent choice—that may limit its utility as a mental health help-seeking framework, especially among individuals with severe mental illness. It is possible, as this model suggests, that help-seeking decisions involve less independent choice and more coercion, social influence, or passive acceptance of treatment referrals.

### *Research Implications*

This study adds to the literature by utilizing the theoretical model of the HBM to inform the inclusion of a variety of measures, including the Cues to Action construct. Because no validated measures of the Cues to Action construct were found to be available, a measure was developed for this study. The consistent finding that Cues to Action are strongly related to both formal and informal forms of help-seeking suggests that this construct is a useful addition to the help-seeking literature in mental health research. Given the potential impact of Cues to Action suggested by this initial study, along with the direct applicability to interventions that may be promised by such a focus, these findings suggest that the development and validation of a Cues to Action scale for mental health would likely result in a full understanding of the complex process of seeking mental health assistance.

An improved version of the Cues to Action scale may include broader measures of influence, reaching beyond friends, family, physicians, and media sources, to include specific information such as completing a depression screening, hearing another person self-disclose about receiving treatment in the past, or receiving cues to action specifically from a partner,

mother, or child. Additionally, the measure could be improved through qualitative study exploring the content of cues that women commonly experience, in order to develop a method of measuring specific messages such as “encouraged me to seek treatment,” “told me my symptoms were affecting our relationship” or “expressed concern about my symptoms” rather than the more general phrasing of “spoke with me about my depressive symptoms.”

### *Applied Implications*

The focus of most intervention studies has been on the detection of perinatal depression through regular clinic screening, with nurses providing feedback and referral to women who report elevated symptoms. Research is limited and mixed regarding the impact of screening and referral on treatment receipt (Gaynes et al., 2005). When screening is conducted regularly, studies suggest that only a small percentage actually follow through with treatment (Flynn et al., 2006). On the one hand, receiving information about perceived severity from a nurse may provide a significant “cue” to action for women who are unsure about the severity of their symptoms. This cue may be sufficient to prompt some women to seek treatment who might not otherwise do so. On the other hand, the impact of screening interventions may be improved when focus is given not only to providing depression information and referral, but also to other influential social supports and the messages being received from these individuals. For example, we might expect a difference to exist when women are given depression feedback from a nurse only versus women given feedback from the nurse, followed by regular check-ins from her obstetrician, along with an opportunity to read printed information about depression and encouragement to bring her partner/mother/or primary social support to an appointment to discuss her mood symptoms and treatment options. Perhaps the addition of these possible intervention points would improve the number

of women who follow through with referrals. This is an empirical question, which may have potential to add to the ongoing debate regarding the effectiveness of depression screening for improving treatment of perinatal depression.

### *Limitations*

#### *Internal Validity*

This research project was conducted using a correlational design, with no variable manipulation. Therefore, the results must be interpreted as potential relationships, and causality cannot be assumed. One interpretation of the results regarding cues to action, for example, might indicate that individuals first experience “cues” that then encourage them to seek out sources of formal and informal help. This is the hypothesized relationship between the variables; however, it is also plausible that individuals who seek help are more likely to recall being cued because they are seeking help, creating a confirmation bias. Further, because the study included self-report data collected at one time point, it is possible that individuals who sought help more frequently rated their experiences of cues to action as being more influential in this decision than those who did not seek help. Thus, the experience of seeking help caused a change in perceptions of cues, rather than the opposite.

*Retrospective self-report data.* This research included both a face-to-face screening for depression symptoms and a self-report mailed survey. This study design was utilized to be integrated easily into the practice of the obstetrics clinics in which women were recruited and for ease of data collection. However, some limitations are inherent to this type of data collection and should be discussed. First, it is highly likely that despite research assistants’ sensitivity to depression stigma and care regarding confidentiality of participants, some

women may have reported fewer depressive symptoms than they were truly experiencing due to social desirability or concerns regarding confidentiality. The same may be true for mailed surveys completed by women and returned. Regarding a topic as sensitive as depression in pregnancy, particularly given the possibility that women do not fully distinguish university research from university-based care, the potential impact of social desirability should be considered when interpreting these results.

*Specific treatment information not identified.* The outcomes of interest were measured using a 5-point scale of frequency over a 3-month time span. While these outcomes were utilized to aid in combining and comparing informal and formal use for analysis, it could also be argued that among the formal treatments (medical and mental health visits), more specific outcomes would be advantageous in order to account for subjectivity in women's responses. For example, asking women to list how long and how often they meet with each provider would be useful to determine the number of women receiving a standard treatment for depression, such as weekly psychotherapy or monthly medication visits. Further, no information was gathered regarding the type of specific treatment women received, so that no evaluation can be made about whether empirically supported treatments were used or if women were adherent to medications, if prescribed.

### *Sample*

The sample used in this study was purposefully diverse, drawing from both university-based suburban and community-based urban clinic populations. While the sample is demographically representative of the specific areas in which women were recruited, caution should be used in generalizing from beyond these two communities in southeastern

Michigan. The study did not include an adequate sample of women self-identifying as Latina, Asian-American, or Arab-American, and therefore these results cannot be generalized across ethnic groups.

Further, the sample chosen included women who were identified by a depression screening tool, rather than through the use of a diagnostic interview to determine if a full diagnosis of major depressive disorder would be met. Therefore, this research is not fully generalizable to women with major depressive disorder but rather to women with elevated depressive symptomatology.

#### *Statistical Power*

Power analysis estimates indicated that the selected sample of 110 women could adequately detect a medium effect size using the hypothesized variables. However, the research could be enhanced by the use of a larger sample size, so that separate analyses of the model could be completed for urban and suburban samples. It is possible that psychological factors contribute differently to help-seeking models within these different communities; however, there was not an adequate sample size in the current study to separate these groups for analysis.

#### *Measurement*

In this study, the Health Belief Model was used as a theoretical basis for including a variety of psychological factors in the design. In other areas of health-promoting behavior research, standardized, validated measures of the Health Belief Model have been developed for the specific behavior of interest. Unfortunately, adequately validated measures of HBM constructs were not found to be available at the time of this project's development.

Therefore, using the HBM constructs of perceived benefits, barriers, susceptibility, and severity as a guide, established measures were chosen when available, and in the case of the Cues to Action construct, a new measure was developed. This provides a limitation in the current research because it is quite possible that other researchers would interpret the HBM constructs differently for mental health help-seeking and therefore select different measures to “test” the model.

Further, the construct of Cues to Action as interpreted by the researcher included wording of questions in a way that indicated that others initiated conversation with women regarding their depressive symptoms. (e.g., “My physician spoke with me about my depressive symptoms”). However, it could be argued that the wording and conceptualization of these items risks being too similar to the outcome measures of interest, help-seeking behaviors (e.g., “How frequently have you spoken to a medical provider (nurse, doctor, etc) about your mood/depression?”). To account for this possibility, as mentioned in the results section, analyses for each outcome were conducted both with and without similarly worded cues to action items. Further, the inclusion of the second set of items in the Cues to Action inventory, the influence items (e.g., how did this influence your decision to seek or not seek treatment?) also differentiated the cues to action construct from the outcomes assessed. However, this draws attention to the difficulty in conceptualizing and measuring Cues to Action. Future research in this area may result in a clearer distinction between cues and help-seeking behaviors.



### *Future Directions*

The initial aim of this study was to explore factors contributing to help-seeking in pregnancy, using the HBM as a theoretical guide. The results of this study raise a number of important questions to be addressed by future research in this area.

The relationship between Cues to Action and help-seeking processes suggests that social influences may play an important role in treatment-seeking decisions among perinatal women. However, little attention has been given to the specific influences that women experience, and the current Cues to Action scale developed for this study has limitations, discussed previously. Given the relative lack of information regarding the quality and influence of women's experienced Cues to Action in the perinatal period, a significant addition to the literature would be gained by conducting in-depth qualitative interviews with women who are experiencing perinatal depression. Of particular interest would be those women who have taken some concrete step toward treatment-seeking, such as scheduling a first appointment to see a therapist or psychiatrist. By querying women specifically about influences on their decisions to seek treatment, along with focus on the most frequently mentioned sources of influence (e.g., partner, coworker, news media, friends, or mother), and the content of specific messages (both pro-treatment and anti-treatment) that women receive from others, a more comprehensive and relevant Cues to Action scale can be developed for future studies. Further, an understanding of the relative time frame that women report between first noticing symptoms, experiencing social influences, and taking steps toward seeking treatment would be useful in designing future prospective studies to maximally cover women's decision-making processes.

Additionally, this potential relationship between perceptions, social influence, and treatment could be explored using prospective studies of treatment-seeking in a larger sample. It is possible that becoming depressed changes women's perceptions of treatment, stigma, symptoms, and other important factors; additionally, seeking treatment may also likely change women's perceptions as well. Therefore, a study design that begins with assessment of women's perceptions at the first trimester of pregnancy, followed by a continued prospective study (through 3 months postpartum, for example) of women identified as elevated in depressive symptoms, would be able to further address such questions using structural equation modeling to more thoroughly evaluate the HBM or alternative models of help-seeking. Additional power through a larger sample would allow for separate analysis of urban and suburban samples in order to determine if help-seeking patterns differ by socioeconomic context.

Given the wide variety of treatments available to women experiencing perinatal depression, it may be important to ask not only what is predicting treatment but also, specifically, what treatment is sought by whom. Large-scale studies that differentiate between use of empirically supported treatments, therapeutic doses of medications, or alternative forms of treatment will expand our understanding of what factors are associated with the treatments that are most likely to be beneficial. Further, eliciting information about treatment adherence will further deepen knowledge about the utility of treatment-seeking models in predicting not only first appointments but continued treatment.

Finally, the potential relationship between social influence and treatment-seeking fuels a host of questions relevant for intervention studies. If further study bears out the findings that others noticing symptoms is influential in women's personal decision-making

regarding treatment, then perhaps interventions designed to focus on significant social supports, rather than on women themselves, would be warranted. Kopelman et al. (2008) found that 33% of women in a similar prenatal sample rated that lack of partner support for treatment was at least a moderate barrier to seeking mental health services for depressive symptoms. Interventions designed to change the perceptions of the partners, mothers, or obstetricians that women interact with may provide a useful new direction rather than anti-stigma, pro-treatment education campaigns that are primarily directed at pregnant women. Ultimately, randomized trials of interventions designed to increase supportive dialogue and connection to treatment resources among social supports of pregnant women could test the effectiveness of this proposed shift in focus.

### *Conclusions*

Given the health risks associated with untreated depression among pregnant women, understanding and ultimately reducing barriers to treatment in this population fulfills an important public health need. This complex and critical issue requires an understanding of both psychological and practical barriers to treatment, providing a theoretical base for developing interventions and evaluating their impact on appropriate engagement with treatment. This study provides evidence that social influence may play a larger role in help-seeking behaviors than previously thought, warranting additional exploration of the specific relationship between social influence, individual perceptions, and treatment decisions. It is hoped that further study will result in the modification of theoretical models of help-seeking to predict treatment use among this population. Additionally, further study will result in an explication of factors associated with treatment-seeking, along with the development of more comprehensive assessments of treatment barriers. Finally, it is hoped that through theory-

based, systematic research in this area, this research will contribute to healthcare practices by offering empirically supported interventions and changes in healthcare systems designed to reduce the gap between treatment need and treatment receipt.

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## APPENDICES

## APPENDIX A

## Informed Consent Document

## UNIVERSITY OF MICHIGAN CONSENT TO BE PART OF A RESEARCH STUDY

### *Information About this form:*

You may be eligible to take part in a research study. This form gives you important information about the study. It describes the purpose of the study, and the risks and possible benefits of participating in the study.

Please take time to review this information carefully. After you have finished, you should talk to the researchers about the study and ask them any questions you have. You may also wish to talk to others (for example, your friends, family, or other doctors) about your participation in this study. If you decide to take part in the study, you will be asked to sign this form. Before you sign this form, be sure you understand what the study is about, including the risks and possible benefits to you.

### **1. General Information About This Study and the Researchers:**

#### **1.1 Study title:**

Understanding Mental Health Treatment Use in Pregnant and Postpartum Women

#### **1.2 Company or agency sponsoring the study:**

University of Michigan – Dearborn funds

#### **1.3 Names, degrees, and affiliations of the researchers conducting the study:**

Heather A. O'Mahen, Ph.D., University of Exeter, Department of Behavioral Sciences  
Erin Henshaw, M.S., Eastern Michigan University – Department of Psychology  
Heather A. Flynn, Ph.D., University of Michigan Medical Center – Department of Psychiatry

### **2. Study purpose:**

The first purpose of this study is to look at ways to identify depression during pregnancy in women who might not otherwise recognize symptoms of depression or whose health care provider may not have identified these symptoms. We are also interested in knowing about women's views of mental health treatment, including why they may or may not choose to engage

in treatment. Studies about women's use of mental health treatment during the perinatal period is important since most women at-risk for depression do not receive proper care, and receiving adequate care can significantly improve the lives of women and their children.

### **3. Information About study participants (SUBJECTS)**

Taking part in this study is completely **voluntary**. You do not have to participate if you don't want to. You may also leave the study at any time. If you leave the study before it is finished, there will be no penalty to you, and you will not lose any benefits to which you are otherwise entitled.

#### **3.1 Who can take part in this study?**

Women who are over the age of 18 and pregnant are eligible to participate. Because it is very important that you provide accurate and complete information about your medical history and condition, it is necessary that you speak English to participate. Also, to participate, it will be important that you live within 45 minutes of this clinic.

After you give your consent, the researchers will ask you to complete a short questionnaire about current and past depressive mood, whether or not you have sought treatment, and your attitudes about depression and seeking treatment. Your results are confidential. All research information you provide is separate from your care at the clinic and will not affect that care in any way. The depression questionnaires will also be used to determine eligibility for the study. If you score 12 or greater on the depression screen, you will be eligible to participate in subsequent interviews portions of this study.

*Note: it is **very important** for you to give the researchers **accurate** and **complete** information about your medical history and condition.*

#### **3.2 How many people (subjects) are expected to take part in this study?**

1800 women will be screened and we expect 162 women to participate in the study from Oakland County, MI, Flint, MI, and Canton, MI.

### **4. Information about study participation**

#### **4.1 What will happen to me in this study?**

If you agree to participate in this study, you will be asked to complete a brief screen that will ask you questions about current and past depressive symptoms, beliefs about depression and its treatment, and whether or not you have sought mental health treatment.

If you score 12 or more ("at-risk") on the depression screen, you will be asked to complete an initial survey. If you do not score 12 or more on the depression screen, you will not be asked to participate in subsequent portions of the interview. The survey will be mailed to persons at risk for depression. You will be provided with a self-addressed stamped envelope in which to mail it back. This survey will take about 30 minutes to complete. The survey will include measures

about your mood, social support, mental health treatment, and beliefs about depression and its treatment. If, at the end of the study, you would like to receive information about the study we will be happy to provide that for you.

We are committed to protecting your confidentiality during all aspects of the study. However, if you indicate at any time that you have intentions to harm yourself or others, the researchers may be required to share this information with people who can help to prevent harm coming to you or another person.

Finally, obstetric records of women who agree to be in the study will be reviewed by the clinical researcher as part of the study. The purpose of reviewing your record will be to: (1) gather general demographic information (e.g., age, marital status, insurance coverage), (2) determine general information related to your health and the health of your baby. For instance, we are interested in the types of notations your doctor made about your health and the health of your child during your pregnancy, (3) whether your clinician has made any notations in your record about the presence of depression or about treatments given or recommended for depression.

Your responses will be stored in a research database. At the beginning of the study, you will be assigned a unique id code. Your responses will only be identified by your id code, not your name. However, during the study, on a separate sheet of paper, your id code will be linked to your name. This link will be kept separate from your responses in a locked file cabinet in a locked office, and will be destroyed at the completion of the study. You may, at any point during the course of the study (when we can determine the link between your id code and your name), opt to remove your data from the research database.

#### **4.2 How much of my time will be needed to take part in this study?**

The initial screening process should take approximately 10 minutes of your time. If you score below the "at risk" range for depression, you will not be contacted for further participation.

All women who score in the "at risk" range for depression (based on routine depression screening in the health care clinics) will be eligible to participate in the study. If you agree to participate in the study, you will be asked to complete a mail survey. The survey will take approximately 30 minutes to complete and you will be paid \$10.

#### **4.3 When will my participation in the study be over?**

Most subjects will complete their part in the study within 1 year. The entire study is expected to last about 2 years.

### **5. information about risks and benefits**

#### **5.1 What risks will I face by taking part in the study? What will the researchers do to protect me against these risks?**

The known or expected risks are:

- This study involves revealing sensitive information about yourself, thus, there may be a risk to your privacy and confidentiality.
- You may be uncomfortable discussing depression and by some of the questions asked during the study.
- The length of the interview may be inconvenient for some participants.

The researchers will try to minimize these risks by:

- The researchers have taken precautions to ensure the confidentiality of your information. All information will be coded with an id code only. Your name will not be written on any materials with your written responses. Any information linking your id code to your name will be stored separately from your responses. All information will be kept in a locked file cabinet in a locked office. After the study is completed, any information linking your id code to your name will be destroyed. Any results that we report will be reported in group format. You will never be individually identified.
- You may choose not to complete the mailed survey if discussing the questions is uncomfortable.

As with any research study, there may be additional risks that are unknown or unexpected.

## **5.2 What happens if I get hurt, become sick, or have other problems as a result of this research?**

The researchers have taken steps to minimize the risks of this study. Even so, you may still have problems or side effects, even when the researchers are careful to avoid them. Please tell the researchers listed in Section 10 about any injuries, side effects, or other problems that you have during this study. You should also tell your regular doctors.

## **5.3 If I take part in this study, can I also participate in other studies?**

*Being in more than one research study at the same time, or even at different times, may increase the risks to you. It may also affect the results of the studies.* You should not take part in more than one study without approval from the researchers involved in each study.

## **5.4 How could I benefit if I take part in this study? How could others benefit?**

You may not receive any personal benefits from being in this study. However, some participants may benefit from recognition of and referral for untreated depression, which is a disabling illness. The information from this study will help health care providers in obstetrics settings to better recognize, treat and possibly prevent worsening depression throughout pregnancy and post-partum. This information may one day help to provide better services to other pregnant and postpartum women who suffer from depression.

### **5.5 Will the researchers tell me if they learn of new information that could change my willingness to stay in this study?**

Yes, the researchers will tell you if they learn of important new information that may change your willingness to stay in this study. If new information is provided to you after you have joined the study, it is possible that you may be asked to sign a new consent form that includes the new information.

## **6. Other options**

### **6.1 If I decide not to take part in this study, what other options do I have?**

Your becoming a subject in this study is entirely by your own free choice. You may also drop out of the study by your own free will, after having agreed to become a subject. You may refuse to enroll in the study, or drop out of the study at any time without any penalty; by doing so, you will not lose any benefits that you may be entitled to. Ask the researchers or your doctor about other choices you may have.

## **7. Ending the study**

### **7.1 If I want to stop participating in the study, what should I do?**

You are free to leave the study at any time. If you leave the study before it is finished, there will be no penalty to you. You will not lose any benefits to which you may otherwise be entitled. If you choose to tell the researchers why you are leaving the study, your reasons for leaving may be kept as part of the study record. If you decide to leave the study before it is finished, please tell one of the persons listed in Section 10 “Contact Information” (below).

### **7.2 Could there be any harm to me if I decide to leave the study before it is finished?**

You are under no pressure to participate in this study and you may withdraw at any time by stating your wish to do so. There is no anticipated harm by withdrawing from the study before it is finished.

### **7.3 Could the researchers take me out of the study even if I want to continue to participate?**

Yes. There are many reasons why the researchers may need to end your participation in the study. Some examples are:

- ✓ The researcher believes that it is not in your best interest to stay in the study.
- ✓ You become ineligible to participate.
- ✓ Your condition changes and you need treatment that is not allowed while you are taking part in the study.

- ✓ You do not follow instructions from the researchers.
- ✓ The study is suspended or canceled.

## **8. Financial Information**

### **8.1 Who will pay for the costs of the study? Will I or my health plan be billed for any costs of the study?**

There are no costs or billing for this study.

By signing this form, you do not give up your right to seek payment if you are harmed as a result of being in this study.

### **8.2 Will I be paid or given anything for taking part in this study?**

You will be paid \$10 for the mail-in survey.

### **8.3 Who could profit or financially benefit from the study results?**

There are no persons or companies who might financially benefit from the study results. This study is being conducted in order to understand depressed women's barriers to treatment.

## **9. Confidentiality of subject records and authorization to release your protected health information**

The information below describes how your privacy and the confidentiality of your research records will be protected in this study.

### **9.1 How will the researchers protect my privacy?**

All of your research records, if you decide to participate in this study, will be kept confidential. That is, your health care providers, clinic staff, and anyone other than our research staff will NOT have access to the research record.

This research record will not show your name, but will have codes entered in it, that will allow the information to be linked to you. Any and all identifying information will be kept separate from the research records in a locked, secure space, accessed only by the study investigators. We will keep your research record confidential, to the extent provided by federal, state and local law. We will not allow anyone to see your record, other than people who have a right to see it. You will not be identified in any reports on this study. We will not share any information provided within the context of this research study to your doctor or anyone else. It is entirely your choice if you decide to talk with your doctor about your participation in this study.

## 9.2 What information about me could be seen by the researchers or by other people? Why? Who might see it?

Signing this form gives the researchers your permission to obtain, use, and share information about you for this study, and is required in order for you to take part in the study. Information about you may be obtained from any hospital, doctor, and other health care provider involved in your care, including:

- Hospital/doctor's office records, including test results (X-rays, blood tests, urine tests, etc.)
- Mental health care records (except psychotherapy notes not kept with your medical records)
- Alcohol/substance abuse treatment records
- Your AIDS/HIV status
- All records relating to your condition, the treatment you have received, and your response to the treatment
- Billing information

There are many reasons why information about you may be used or seen by the researchers or others during or after this study. Examples include:

- The researchers may need the information to make sure you can take part in the study.
- The researchers may need the information to check your test results or look for side effects.
- University, Food and Drug Administration (FDA), and/or other government officials may need the information to make sure that the study is done in a safe and proper manner.
- Study sponsors or funders, or safety monitors or committees, may need the information to:
  - Make sure the study is done safely and properly
  - Learn more about side effects
  - Analyze the results of the study
- Insurance companies or other organizations may need the information in order to pay your medical bills or other costs of your participation in the study
- The researchers may need to use the information to create a databank of information about your condition or its treatment.
- Information about your study participation may be included in your regular UMHS medical record.
- If you receive any payments for taking part in this study, the University of Michigan accounting department may need your name, address, social security number, payment amount, and related information for tax reporting purposes.
- If you indicate at any time that you have intentions to harm yourself or others, the researchers may have to share this information with people who can help to prevent harm coming to you or another person.



- Federal or State law may require the study team to give information to government agencies. For example, to prevent harm to you or others, or for public health reasons.

The results of this study could be published in an article, but would not include any information that would let others know who you are.

### **9.3 What happens to information about me after the study is over or if I cancel my permission?**

As a rule, the researchers will not continue to use or disclose information about you, but will keep it secure until it is destroyed. Sometimes, it may be necessary for information about you to continue to be used or disclosed, even after you have canceled your permission or the study is over. Examples of reasons for this include:

- To avoid losing study results that have already included your information
- To provide limited information for research, education, or other activities (This information would not include your name, social security number, or anything else that could let others know who you are.)
- To help University and government officials make sure that the study was conducted properly

As long as your information is kept within the University of Michigan Health System, it is protected by the Health System's privacy policies. For more information about these policies, ask for a copy of the University of Michigan Notice of Privacy Practices. This information is also available on the web at <http://www.med.umich.edu/hipaa/npp.htm>. Note that once your information has been shared with others as described under Question 9.2, it may no longer be protected by the privacy regulations of the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA).

### **9.4 When does my permission expire?**

Your permission expires at the end of the study, unless you cancel it sooner. You may cancel your permission at any time by writing to the researchers listed in Section 10 "Contact Information" (below).

## **10. Contact Information**

### **10.1 Who can I contact about this study?**

Please contact the researchers listed below to:

- Obtain more information about the study
- Ask a question about the study procedures or treatments
- Talk about study-related costs to you or your health plan
- Report an illness, injury, or other problem (you may also need to tell your regular doctors)

- Leave the study before it is finished
- Express a concern about the study

Principal Investigator: Heather O'Mahen  
 Mailing Address: 2739 Rachel Upjohn Building, Ann Arbor, MI 48105  
 Telephone: 734.232.0350

Study Coordinator: Erin Henshaw  
 Mailing Address: 2739 Rachel Upjohn Building, Ann Arbor, MI 48105  
 Telephone: 1.888.303.2766

You may also express a concern about a study by contacting the Institutional Review Board listed below, or by calling the University of Michigan Compliance Help Line at 1-888-296-2481.

University of Michigan Medical School Institutional Review Board (IRBMED)  
 Argus I  
 517 W. William  
 Ann Arbor, MI 48103-4943  
 Telephone: 734-763-4768  
 Fax: 734-615-1622  
 e-mail: [irbmed@umich.edu](mailto:irbmed@umich.edu)

If you are concerned about a possible violation of your privacy, contact the University of Michigan Health System Privacy Officer at 1-888-296-2481.

When you call or write about a concern, please provide as much information as possible, including the name of the researcher, the IRBMED number (at the top of this form), and details about the problem. This will help University officials to look into your concern. When reporting a concern, you do not have to give your name unless you want to.

## **11. Record of Information provided**

### **11.1 What documents will be given to me?**

Your signature in the next section means that you have received copies of all of the following documents:

- This "Consent to be Part of a Research Study" document. *(Note: In addition to the copy you receive, copies of this document will be stored in a separate confidential research file and may be entered into your regular University of Michigan medical record.)*

**12. SIGNATURES****Research Subject:**

I understand the information printed on this form. I have discussed this study, its risks and potential benefits, and my other choices with \_\_\_\_\_. My questions so far have been answered. I understand that if I have more questions or concerns about the study or my participation as a research subject, I may contact one of the people listed in Section 10 (above). I understand that I will receive a copy of this form at the time I sign it and later upon request. I understand that if my ability to consent for myself changes, either I or my legal representative may be asked to re-consent prior to my continued participation in this study.

*Signature of Subject:* \_\_\_\_\_ *Date:* \_\_\_\_\_

*Name (Print legal name):* \_\_\_\_\_

*Date of Birth:* \_\_\_\_\_

**Principal Investigator (or Designee):**

I have given this research subject (or his/her legally authorized representative, if applicable) information about this study that I believe is accurate and complete. The subject has indicated that he or she understands the nature of the study and the risks and benefits of participating.

*Name:* \_\_\_\_\_ *Title:* \_\_\_\_\_

*Signature:* \_\_\_\_\_ *Date of Signature:* \_\_\_\_\_

Medical School Institutional Review Board (IRBMED) • Argus I Building, 517 W. William, Ann Arbor, MI 48103-4943 • phone (734) 763 4768 • fax (734) 763 9603 • irbmed@umich.edu

## APPENDIX B

IRB Approval Letters from University of Michigan and Eastern Michigan University

**To:** Dr. Heather O'Mahen

**From:** Michael Geisser, John Weg

**CC:** Heather Flynn, Erin Henshaw

**Subject:** Initial Study Approval for [HUM00009628]

**SUBMISSION INFORMATION:**

in Pregnant and Postpartum Women

[HUM00009628](#) Date of this Notification from IRB: 3/2/2007 Initial IRB Approval Date:

1/25/2007 **Current IRB Approval Period: 1/25/2007 - 1/24/2008 Expiration Date:**

1/24/2008 **UM Federalwide Assurance** 04969 expiring on 5/10/2009

OHRP IRB Registration Number(s): IRB 00001999

Study Title: Und  
Full Study Title (if

**NOTICE OF IRB APPROVAL AND CONDITIONS:**

approved the study referenced above. The IRB determined that the proposed research conforms with applicable guidelines, State and federal regulations, and the University of Michigan's Federalwide Assurance (FWA) with the Department of Health and Human Services (HHS). You must conduct this study in accordance with the description and information provided in the approved application and associated documents.

The IRBMED has re

**APPROVAL PERIOD AND EXPIRATION:**

above. Please note the expiration date. If the approval lapses, you may not conduct work on this study until appropriate approval has been re-established, except as necessary to eliminate apparent immediate hazards to research subjects. Should the latter occur, you must notify the IRB Office as soon as possible.

The approval period



**Michael Geisser**  
Interim Co-chair, IRBMED



**John Weg**  
Co-chair, IRBMED

[INSERT LETTER FROM EMU HERE]

## APPENDIX C

## Edinburgh Postnatal Depression Scale (EPDS)

*Please circle the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.*

1. I have been able to laugh and see the funny side of things

- 0 As much as I always could
- 1 Not quite so much now
- 2 Definitely not so much now
- 3 Not at all

2. I have looked forward with enjoyment to things

- 0 As much as I ever did
- 1 Rather less than I used to
- 2 Definitely less than I used to
- 3 Hardly at all

3. I have blamed myself unnecessarily when things went wrong

- 3 Yes, most of the time
- 2 Yes, some of the time
- 1 Not very often
- 0 No, never

4. I have been anxious or worried for no good reason

- 0 No, not at all

- 1 Hardly ever  
 2 Yes, sometimes  
 3 Yes, very often
5. I have felt scared or panicky for no very good reason  
 3 Yes, quite a lot  
 2 Yes, sometimes  
 1 No, not much  
 0 No, not at all
6. Things have been getting on top of me  
 3 Yes, most of the time I have not been able to cope at all  
 2 Yes, sometime I haven't been coping as well as usual  
 1 No, most of the time I have coped quite well  
 0 No, I have been coping as well as ever
7. I have been so unhappy that I have had difficulty sleeping  
 3 Yes, most of the time  
 2 Yes, sometimes  
 1 Not very often  
 0 No, not at all

8. I have felt sad or miserable

3 Yes, most of the time

2 Yes, quite often

1 Not very often

0 No, not at all

9. I have been so unhappy that I have been crying

3 Yes, most of the time

2 Yes, quite often

1 Only occasionally

0 No, never

10. The thought of harming myself has occurred to me

3 Yes, quite often

2 Sometimes

1 Hardly ever

0 Never



## APPENDIX D

## Demographic Items

D1. What is your age? \_\_\_\_\_

D1a. How many weeks pregnant are you? \_\_\_\_\_

D1b. When is your due date? \_\_\_\_\_

D2. What is your health insurance now?

- |  |   |
|--|---|
| 1 <input type="radio"/> MCARE_                     | 4 <input type="radio"/> Medicaid (other than MCARE) |
| 2 <input type="radio"/> Private (other than MCARE) | 5 <input type="radio"/> No health insurance         |
| 3 <input type="radio"/> MCARE Medicaid             | 6 <input type="radio"/> Other                       |

D3. How many children (not including pregnancy) do you have? \_\_\_\_\_

D4. How many of your children currently live with you? \_\_\_\_\_

D5. What is your race/ethnic group? You may select more than one.

- |  |   |
|--|---|
| 1 <input type="radio"/> Black/African American | 5 <input type="radio"/> Asian or Pacific Islander         |
| 2 <input type="radio"/> White/Caucasian        | 6 <input type="radio"/> American Indian or Alaskan Native |
| 3 <input type="radio"/> Hispanic/Latina        | 7 <input type="radio"/> Arab American                     |
| 4 <input type="radio"/> Other                  |   |

D6. What is your current marital status? 1  Married

2  Separated

3  Live-in partner

4  Divorced

5  Widowed

6  Not in a relationship now

7  Dating, not living together

D7. Who lives with you currently? You may select more than one.

- |   |  |
|---|--|
| 1 <input type="radio"/> Alone             | 6 <input type="radio"/> Friends                                  |
| 2 <input type="radio"/> Spouse or partner | 7 <input type="radio"/> Other boarders                           |
| 3 <input type="radio"/> Children          | 8 <input type="radio"/> My parents or partner's/spouse's parents |
| 4 <input type="radio"/> Siblings          | 9 <input type="radio"/> Other _____                              |
| 5 <input type="radio"/> Other relations   |  |

D8. What is the number that most closely corresponds to the total yearly income of your entire household?

- |   |  |
|---|--|
| 1 <input type="radio"/> \$0-\$1,999       | 10 <input type="radio"/> \$30,000-\$39,999 |
| 2 <input type="radio"/> \$2,000-\$2,999   | 11 <input type="radio"/> \$40,000-\$49,999 |
| 3 <input type="radio"/> \$3,000-\$3,999   | 12 <input type="radio"/> \$50,000-\$59,999 |
| 4 <input type="radio"/> \$4,000-\$4,999   | 13 <input type="radio"/> \$60,000-\$69,999 |
| 5 <input type="radio"/> \$5,000-\$6,999   | 14 <input type="radio"/> \$70,000-\$79,999 |
| 6 <input type="radio"/> \$7,000-\$9,999   | 15 <input type="radio"/> \$80,000-\$89,999 |
| 7 <input type="radio"/> \$10,000-\$14,999 | 16 <input type="radio"/> \$90,000-\$99,999 |
| 8 <input type="radio"/> \$15,000-\$19,999 | 17 <input type="radio"/> \$100,000 or more |
| 9 <input type="radio"/> \$20,000-\$29,999 |  |

D9. How many years of school did you finish?

- |   |  |
|---|--|
| 1 <input type="radio"/> 8 <sup>th</sup> grade or less             | 5 <input type="radio"/> Some college years     |
| 2 <input type="radio"/> 9 <sup>th</sup> to 11 <sup>th</sup> grade | 6 <input type="radio"/> College graduate       |
| 3 <input type="radio"/> Graduate high school/GED                  | 7 <input type="radio"/> Some graduate school   |
| 4 <input type="radio"/> Master's level graduate degree            | 8 <input type="radio"/> M.D. or Ph.D. graduate |

D10. What is your current work status?

- |  |   |
|--|---|
| 1 <input type="radio"/> Homemaker          | 5 <input type="radio"/> Maternity Leave                         |
| 2 <input type="radio"/> Working, part-time | 6 <input type="radio"/> Working, full-time                      |
| 3 <input type="radio"/> Laid Off           | 7 <input type="radio"/> Volunteer                               |
| 4 <input type="radio"/> Student            | 8 <input type="radio"/> On disability or extended medical leave |

## APPENDIX E

## Treatment History

1. Have you sought any kind of treatment (antidepressant, therapy) for depression and/or anxiety in the past 6 months?

Yes       No

2. Have you ever sought any kind of treatment (antidepressant, therapy) for depression and/or anxiety in your life?

Yes       No

3. How helpful was therapy in reducing your symptoms of depression? (if used)

Not at all Helpful	Slightly Helpful	Helpful	Very Helpful
1	2	3	4

4. How helpful were antidepressants in reducing your symptoms of depression? (if used)

Not at all Helpful	Slightly Helpful	Helpful	Very Helpful
1	2	3	4

## APPENDIX F

## Perceived Severity

**IPQ-Consequences Subscale**

**Preface:** You've indicated that during the past month you've been bothered by feeling down or depressed, and/or having little interest or pleasure in doing things. This next set of questions will ask about the effect these symptoms have had on your life. Please indicate the extent to which you agree or disagree with the following statements.

Rating Scale:

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

1. My symptoms are part of a serious condition
2. My symptoms have had major consequences on my life
3. My symptoms have become easier to live with
4. My symptoms have not had much effect on my life
5. My symptoms have strongly affected the way others see me
6. My symptoms have serious financial consequences
7. My symptoms have strongly affected the way I see myself as a person
8. My symptoms will impact my baby
9. My symptoms will affect my relationship to my partner
10. My symptoms will affect my relationship to my family
11. My symptoms will affect my relationship to my friends
12. My symptoms will affect my relationship to my children
13. My symptoms will push my friends away
14. My symptoms will push my partner away
15. My symptoms will push my family away
16. My symptoms will push my children away

17. My symptoms will make me unfit to be a mother
18. My symptoms will lead to losing my child/children
19. My symptoms will hurt my child/children in some way
20. My symptoms will harm my baby
21. My symptoms might lead me to lose control of my life
22. If I take medication for my symptoms it will hurt my baby
23. Having these symptoms means I am crazy
24. Having these symptoms means that I am weak
25. Having these symptoms means that I am an unfit mother

## APPENDIX G

## Perceived Susceptibility

**Past Depression**

1. Has there ever been a period, at any point in your life, where you felt depressed, irritable, or lost interest in pleasurable activities and had some of the symptoms listed above nearly every day for a period of at least 2 weeks?

*Yes*                       *No*

2. During your entire life, how many episodes like that have you had?

**0      1      2      3 or more**

## APPENDIX H

## Perceived Benefits

**Treatment Beliefs**

1. Which of the following best describes what you believe about treatment for depression?

1	2	3	4	5
No way any treatment will help me	Doubtful treatment will help me	Treatment may be helpful	Likely Treatment will help me	Treatment will definitely help me

2. If I enter treatment for depression I will have:

1	2	3
More depression than I have now	About the same depression as I have now	Less depression than I have now

3. If I enter treatment for depression I will have:

1	2	3
More troubles than I have now	About the same troubles as I have now	Less troubles than I have now

4. If I enter treatment for depression I will have:

1	2	3
More problems with my baby	About the same amount of problems with my baby	Less problems with my baby

5. If I enter treatment for depression, I will have:

1	2	3
More problems with my health than I have now	About the same problems with my health as I have now	Less problems with my health than I have now



## APPENDIX I

## Perceived Barriers

**Self-Stigma of Seeking Help Scale**

- | 1                 | 2                 | 3                          | 4              | 5              |
|-------------------|-------------------|----------------------------|----------------|----------------|
| Strongly disagree | Somewhat disagree | Agree and disagree equally | Somewhat agree | Strongly agree |
1. I would feel inadequate if I went to a therapist for psychological help.
  2. \*My self-confidence would NOT be threatened if I sought professional help.
  3. Seeking psychological help would make me feel less intelligent.
  4. \*My self-esteem would increase if I talked to a therapist.
  5. \*My view of myself would not change just because I made the choice to see a therapist.
  6. It would make me feel inferior to ask a therapist for help.
  7. \*I would feel okay about myself if I made the choice to seek professional help.
  8. If I went to a therapist, I would be less satisfied with myself.
  9. \*My self-confidence would remain the same if I sought help for a problem I could not solve.
  10. I would feel worse about myself if I could not solve my own problems.

**Stigma Scale for Receiving Psychological Help**

- | 0                 | 1                 | 2              | 3              |
|-------------------|-------------------|----------------|----------------|
| strongly disagree | somewhat disagree | somewhat agree | strongly agree |
1. Seeing a psychologist for emotional or interpersonal problems carries social stigma.
  2. It is a sign of personal weakness or inadequacy to see a psychologist for emotional or interpersonal problems.
  3. People will see a person in a less favorable way if they come to know that he/she has seen a psychologist.
  4. It is advisable for a person to hide from people that he/she has seen a psychologist.
  5. People tend to like less those who are receiving professional psychological help.

## APPENDIX J

## Cues to Action

**Cues to Action Inventory**

*In the past 3 months, please rate whether you have encountered any of these situations.*

Question a.) responses:

Never	Once	More than once
0	1	2

Question b.) responses:

Strongly discouraged treatment	Somewhat discouraged treatment	No effect	Somewhat encouraged treatment	Strongly encouraged treatment
1	2	3	4	5

1. a) I saw a news program or read a magazine article about depression. (if “never,” skip to question 2)

1. b) How did this influence your decision to seek or not seek treatment?

2. a) I saw a commercial or read a brochure about depression treatment.(if “never,” skip to question 3)

2. b) How did this influence your decision to seek or not seek treatment?

3. a) My physician spoke with me about my depressive symptoms. (if “never,” skip to question 4)

3. b) How did this influence your decision to seek or not seek treatment?

4. a) A coworker or supervisor spoke with me about my depressive symptoms. (if “never,” skip to question 5)

4. b) How did this influence your decision to seek or not seek treatment?

5. a) A friend or family member spoke with me about my depressive symptoms. (if “never,” skip to next section)

5. b) How did this influence your decision to seek or not seek treatment?

APPENDIX K

Factor Analysis

## Factor Loadings for Health Belief Variables

	Factors		
	Severity and Susceptibility	Barriers and Benefits	Cues to Action
<u>Previous Episodes</u>			
During your entire life, how many episodes like that have you had?	.49		
<u>IPQ-Consequences Scale</u>			
My symptoms will affect my relationship to my family.	.84		
My symptoms will affect my relationship to my children.	.82		
My symptoms will push my family away.	.81		
My symptoms will push my children away.	.80		
My symptoms will impact my baby.	.77		
My symptoms will push my partner away.	.77		
My symptoms will affect my relationship to my partner.	.74		
My symptoms will push my friends away.	.72		
My symptoms will affect my relationship to my friends	.68		
My symptoms are part of a serious condition.	.66		
My symptoms have had major consequences on my life.	.65		
My symptoms will hurt my child/children in some way.	.63		
My symptoms might lead me to lose control of my life.	.61		
My symptoms will make me unfit to be a mother.	.60		
My symptoms will harm my baby.	.58		
My symptoms have strongly affected the way I see myself as a person.	.55		
My symptoms have not had much effect on my life.	.53		
My symptoms will lead to losing my child/children.			
My symptoms have serious financial consequences.			
My symptoms have become easier to live with.			
Having these symptoms means that I am an unfit mother.	.40	.45	
Having these symptoms means that I am crazy.		.42	
Having these symptoms means that I am weak.		.51	
If I take medication for my symptoms it will hurt my baby			
<u>Self-Stigma of Seeking Help</u>			
If I went to a therapist, I would be less satisfied with myself.		.70	
Seeking psychological help would make me feel less intelligent.		.66	
I would feel okay about myself if I made the choice to seek professional help.		.65	
I would feel inadequate if I went to therapist for psychologist help		.65	
It would make me feel inferior to ask a therapist for help		.65	
I would feel worse about myself if I could not solve my own problems.		.45	
My self confidence would NOT be threatened if I sought professional help		.47	
My self-esteem would increase if I talked to a therapist.			
My self-confidence would remain the same if I sought help for a problem I could not solve.			
My view of myself would not change just because I made the choice to see a therapist			

Treatment Beliefs

Treatment will definitely help me	- .60
If I enter treatment for depression, I will have less depression than I have now	- .63
If I enter treatment for depression, I will have less troubles than I have now	- .55
If I enter treatment for depression, I will have less problems with my baby	- .51
If I enter treatment for depression, I will have less problems with my health	- .42

Social Stigma of Seeking Help

It is advisable for a person to hide from people that he/she has seen a psychologist.	.51
People will see a person in a less favorable way if they come to know that he or she has seen a psychologist.	.43
It is a sign of personal weakness or inadequacy to see a psychologist for emotional or interpersonal problems.	.76
People tend to like less those who are receiving professional psychological help.	
Seeking a psychologist for emotional or interpersonal problems carries social stigma	

Cues to Action

How did [news program or article] influence your decision to seek or not seek treatment?	.72
How did [commercial or brochure] influence your decision to seek or not seek treatment?	.67
How did [friend or family] influence your decision to seek or not seek treatment?	.61
I saw a commercial or read a brochure about depression treatment.	.60
I saw a new program or read a magazine article about depression.	.59
My physician spoke with me about my depressive symptoms.	.58
How did [physician] influence your decision to seek or not seek treatment?	.52
A friend or family member spoke with me about my depressive symptoms.	.46
My symptoms have strongly affected the way others see me	
How did [coworker or supervisor] influence your decision to seek or not seek treatment?	
A coworker or supervisor spoke with me about my depressive symptoms.	

---

Note: Oblimin rotation used in analysis. Values less than .40 have not been listed.

## APPENDIX L

## Formal and Informal Treatment Use

*These questions pertain to the last 3 months.*

Never	Rarely	Occasionally	Frequently	Constantly
1	2	3	4	5

**Mental Health Utilization/ Formal**

1. How frequently have you spoken to a medical provider (nurse, doctor, etc) about your mood (depression)?
2. How frequently have you spoken to a mental health professional about your mood (depression)?

**Mental Health Utilization/ Informal**

1. How frequently have you read printed (e.g. pamphlet, books, magazines) information about depression?
2. How frequently have you accessed internet sites pertaining to information about depression?
3. How frequently have you spoken to someone in your family about your mood (depression)?
4. How frequently have you spoken to a friend(s) about your mood (depression)?
5. How frequently have you spoken to a community leader (minister, school administrator, community liaison) about your mood (depression)?