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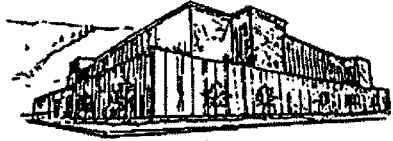
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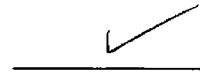
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Native American Depression: A
Cognitive Vulnerability Analysis.

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B.A. The University of Montana, Missoula, 1996

Presented in partial fulfillment of the requirements of

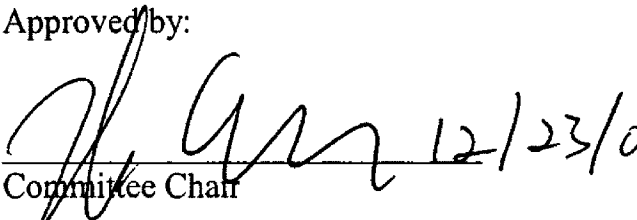
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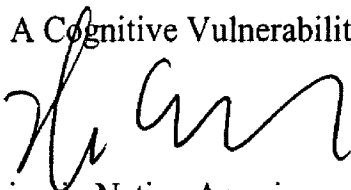
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Native American Depression: A Cognitive Vulnerability Analysis.

Director: David Schulberg



Research concerning depression in Native American populations has been relatively scarce. A cognitive vulnerability approach to understanding this phenomenon holds significant promise to be a more effective and comprehensive way of understanding the etiology of depression among Native Americans. This paper presents a theoretical model describing possible ways in which cognitive vulnerability may manifest itself among Native American subjects and ways that this process may differ from those in other populations. The mechanism believed to confer vulnerability to depression is a negative attributional style; this cognitive style has been found to predict future symptoms and episodes of depression in recent prospective studies. Cognitive vulnerability is believed to act as a third variable impacting the influence of stressors on individuals' susceptibility to depressive symptoms

The current study explored whether hypothetical cognitive vulnerability played a moderating or a mediating role with regard to depressive symptom expression in the current samples and analyzed possible group differences. 136 participants from two tribal colleges in Montana completed various measures of cognitive styles, depression, acculturation, and stress. Both the Native American and the Non-Native American subjects' scores were expected to be consistent with previous studies, and it was expected that both stressors and cognitive vulnerability would significantly predict depression scores. Also, cognitive vulnerability was suspected to act as a third variable operating as either a moderator or a mediator.

Cognitive vulnerability and stressful life experiences were both found to significantly predict depression scores for both the Native and Non-Native samples. However these factors appear to impact depression scores only as main effects in the Native American sample. The moderation hypothesis was thus only supported within the Non-Native sample. The hypothesized mediational role of cognitive vulnerability was not supported in either sample. The combined findings are unique, given that the Native Americans experienced more environmental vulnerability factors for depression yet did not express significantly differential or elevated depression scores. This indicates that resiliency factors may be present in this population and that important distinct etiological patterns are emerging with regard to depression in Native American populations. Constructive treatment and preventative implications are discussed, as well as suggestions for future research.

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Native American Depression: A Cognitive Vulnerability Analysis.

Depression has long been acknowledged as a widespread and debilitating disorder. In fact, depression is the second most commonly diagnosed psychological disorder, affecting nearly 100 million people a year worldwide (Gotlib & Hammen, 1992). Estimated lifetime prevalence rates for diagnosable major depressive disorder range from 12.7% for men and 21.7% for women (Clark, Beck, & Alford 1999; Kessler et. al., 1994). While there has been a significant amount of research done in the general area of depression, some minority populations have often been overlooked in the psychological literature.

In particular Native Americans have been conspicuously absent in much of the discourse on depression. This reality is highly unfortunate. The few studies on the subject show that Native Americans display disproportionately higher rates of depression. In fact, some Indian communities have reported rates of depression that may be four to six times higher than that observed in the U.S. population at large (Manson, Shore, & Bloom, 1985). Indeed, depression is the most frequently diagnosed problem among Indian patients seeking treatment from many mental health facilities (Manson, Shore, & Bloom, 1985). At the Billings Area Office of the Indian Health Service, depression has been second only to alcohol dependence in terms of presenting problem frequency (Neligh, 1988). Depression has also accounted for the bulk of the daily caseloads at many Indian mental health facilities, and it is widely cited as one of the most prevalent problems encountered in these settings. Indeed, 40% of clients who used Indian Health Service mental health programs were treated for depression, anxiety, and adjustment reactions (See also LaFromboise, 1988 for review).

A high rate of depression is particularly apparent among Native American youths; according to a 1990 report by the Office of Technology Assessment, depression is a frequent problem afflicting proportionately more Native American youths than Non-Native youths. In fact, more than half of the Indian adolescents reported serious depressive symptoms when self-report measures were used in the reviewed studies. Additionally young Indian women are a particularly sensitive group. They are much more prone to depression than young Indian men (LaFromboise, & Howard-Pitney, 1995). Manson, Ackerson, Dick, Baron, & Fleming (1990) found that young women's level of depression was consistently higher than young men's when measured at every grade level in high school. This distinction is hardly surprising and is in line with the existing literature regarding gender differences in depression (Nolen-Hoeksema, 1987).

An obvious conclusion to draw is that depression in Native American communities has become a very serious and all too common problem. One disturbing fact is that depression can often be a lethal disorder. Depression has been acknowledged as the most common factor in suicidal behavior and suicide completions (Hafen & Frandsen, 1986). Nearly 20% of American Indian females and 12% of Indian males have reported engaging in suicidal behavior (U.S. Congress, 1990). Suicide death rates for 10-14 year olds are approximately four times higher than that for all races in the United States (U. S. Congress, 1990). Consequently, suicide is the second leading cause of death for Indian adolescents.

Given this rather bleak current picture of rates of depression among Native Americans, the urgent need to address this problem becomes readily apparent. However, in order to address treatment or prevention issues it is helpful to attempt to answer

etiological questions regarding root causes of the disorder. Recent authors have even suggested that the actual experience of depression within Indian populations may itself be qualitatively different than depression in the general population (O'Neil, 1996). This finding highlights the pressing need for more detailed scientific research in the area of cultural differences in the etiology, course, and nature of depression. In spite of the lack of literature in the area, American Indians are currently offered existing modes of psychotherapy. Many existing treatments have not been evaluated in terms of efficacy with Indian populations, yet they are currently used with Native American clients. One must begin to question the utility of such practices. However, before more adequate and effective treatments can be developed and applied, depression as a phenomenon among Native Americans must first be understood more adequately.

Two key questions are (a) What "causes" depression and, (b) why are some individuals more vulnerable to developing depression than others? One potentially beneficial approach is to explore the application of cognitive theories to the etiology of Native American depression. Such an approach would suggest that the manner in which some Native American individuals process information and/or comprehend their emotions and world around them has a profound effect on their psychological health and well-being. Consequently, an important way of understanding depression lies in understanding which of these cognitive factors might be involved in the development of depression symptoms. In particular, this thesis will investigate ways in which some cognitive factors may confer vulnerability to depression among Native Americans.

Risk Factors

At this point the paper examines risk factors. In terms of risk factors, Figure 1 graphically displays the universe of risk that constitutes commonly studied predisposing factors for depression. As is shown, vulnerability per se constitutes a sub-set of the larger set of longstanding predisposing factors, and cognitive vulnerability is a sub-set of vulnerability.

Insert Figure 1 about here.

In order to begin the discussion of how cognitive factors may confer vulnerability to depression, a common language must first be established. Three conceptual terms have been presented to denote causality: necessary causes, sufficient causes, and contributory causes. Necessary causes of depression can be understood to be etiological factors that *must* be present or have occurred in order for the symptoms of depression to occur. However, the presence of necessary causes does not guarantee the occurrence of the symptoms. Alternatively, sufficient causes are etiological factors whose occurrence or presence *guarantees* the occurrence of depressive symptoms. Contributory causes merely increase the likelihood of symptom occurrence, but are neither necessary nor sufficient for the occurrence of symptoms (Abramson, Alloy, & Metalsky, 1998).

In terms of the etiological risk factors that may confer vulnerability to morbidity, the literature on causality has traditionally distinguished distal and proximal risk factors. In general, distal risk factors can be understood to be longstanding or relatively unchangeable variables that put an individual at higher statistical risk for developing a

certain disorder (Abramson, Alloy, & Metalsky, 1988). These predisposing factors can be understood to be genetic factors or "longstanding behavior patterns, childhood experiences, and durable personal and social characteristics that may alter the susceptibility of the individual to illness" (Rabkin & Struening, 1976, p. 1014). In contrast, proximal risk factors can be understood to be precipitating factors that influence the actual timing of onset of the illness or disorder. Proximal risk factors for depression can consist both of the occurrence of stressors or, as we shall see, the appearance or activation of maladaptive cognitive structures or processes.

In general, a productive way of describing the etiology of depression is to adopt a diathesis stress model (Monroe & Simons, 1991). Such models state that the occurrence or presence of distal etiological risk factors predisposes individuals towards developing depression. In other words, the action of the risk factors would establish vulnerability, which would serve as a diathesis. A large body of research has established an important link between stressful major life events and the onset of depressive disorders (Brown & Harris, 1978; Rabkin & Struening, 1976). This finding is included in the diathesis-stress model. As a result, this model would require the occurrence of some stressor in order for this diathesis to be actualized into depression.

The cognitive vulnerability theory for depression states that some individuals may interpret or understand events and interpersonal interactions in their lives in maladaptive ways. These maladaptive ways of interpreting events or interactions are believed to be a result of underlying cognitive styles, schemas, or structures. These cognitive styles or structures serve to distort or misinterpret reality, which in turn may exacerbate or precipitate depression. The theory states that individuals who possess such maladaptive

cognitive styles and structures may be at higher risk or more vulnerable to developing depression (Abramson, Alloy, & Metalsky, 1988; Ingram, Miranda, & Segal, 1998). Thus the latent diathesis (i.e. vulnerability) for depression then consists of maladaptive cognitive variables.

As shown in Figure 2, the presence of vulnerability serves to lower the threshold needed for individuals to develop depression in the presence of stressors. Thus, stress will have a differential effect upon individuals depending upon the presence or absence of vulnerability factors, or the degree of vulnerability.

Insert Figure 2 about here

Regarding Native Americans, the diathesis stress model described here may show that some Indians may be more vulnerable to developing depression (in terms of the distal and proximal risk-factors that are present or have occurred) when faced with stressors. In particular this introduction will address which cognitive distal and proximal risk factors may confer an increased vulnerability to depression among Native Americans. In line with cognitive theories, some Indians may also have maladaptive cognitive styles or structures, which may serve to predispose them to developing depression and subsequently have higher rates of possible suicidality. As we will see, the cognitive styles and structures under examination have actually been thought to constitute both distal and proximal risk factors for depression. That is, these cognitive variables are believed to occur early on developmentally thus constituting distal risk factors for depression. Additionally, they are also believed to act as proximal risk factors by

interacting with stressors to help determine the actual timing of an episode of depression. However, for the present purposes cognitive variables will largely be regarded as distal risk factors.

The picture that will emerge is of a dynamic interplay of both distal and proximal risk factors, establishing a diathesis or vulnerability for the development of depression in Native Americans. However, with regard to vulnerability, it is important to understand one vital fact. While vulnerability is generally understood to be a relatively stable trait that may be somewhat resistant to change, it is not necessarily unalterable or permanent (Ingram, Miranda, & Segal, 1998). Therefore, the view of cognitively vulnerable Native Americans that will emerge will easily lend itself to useful treatment and preventative implications targeting these specific vulnerability factors.

Cognitive Theories of Depression

As mentioned previously, two of the most influential cognitive theories of depression involve the maladaptive cognitive style and maladaptive structures involved in depression. Before a discussion of distal and proximal risk factors can take place each of these theories will be reviewed briefly.

Beck's Cognitive Theory of Depression: Negative Self Schemas

Cognitive vulnerability theories of depression have more one than one approach. As mentioned previously, one approach emphasizes the cognitive style believed to confer vulnerability to depression while the other approach focuses more upon the cognitive structures believed central to the etiology of depression. Beck's cognitive theory of depression has been the most influential model addressing dysfunctional structures (Beck, 1987; Ingram, Miranda, & Segal, 1998). Beck's cognitive theory states that the

presence of dysfunctional cognitive structures, or depressogenic schemas, constitutes sufficient causal elements for the development of depression (Clark, Beck, & Alford, 1999). Essentially, Beck's cognitive theory of depression asserts that depressed individuals harbor a negative view of the self, the world, and the future. This has been referred to as the negative cognitive triad (Abramson, Alloy, & Metalsky, 1988).

Central to this theory is the notion of schemas. Schemas are said to be, "relatively enduring internal structures of stored generic or prototypical features of stimuli, ideas, or experience that are used to organize new information in a meaningful way thereby determining how phenomena are perceived and conceptualized" (Clark, Beck, & Alford, 1999, p. 79). Beck (1967) has argued that negative self-referent schemas are present in depression. These involve themes of personal deficiency, self-blame, and negative expectations. Beck argued that the maladaptive cognitive products or systematic errors in thinking that may accompany or precede depression are simply outward expressions of the negative self-referent schemas, or other deeper cognitive structures that are present (Beck, 1987; Clark, Beck, & Alford, 1999).

The maladaptive products, or ways of interpreting stimuli, believed to be involved in depression are automatic thoughts and selective abstraction produced by the underlying irrational cognitions and beliefs that originate from the underlying negative self-referent schemas. Beck (1967) believes that the depressogenic schemas lead to cognitive distortions of incoming information. The negative self- schemas are then believed to cause and exacerbate depression. Furthermore, they are believed to remain as a latent diathesis for depression. According to this theory, if the appropriate stressor occurs, the underlying dysfunctional schemas are triggered, and an episode of depression

is precipitated. Unlike theories focusing on maladaptive cognitive styles (see below), the theory of negative self-schemas indicates that they remain latent unless activated. When activated, these schemas are believed to give rise to a corresponding pattern of “negative self-referent information processing that precipitates depression” (Ingram, Miranda, & Segal 1998, p. 54). Thus, individuals who have developed such maladaptive schemas may be highly vulnerable for depression.

Hopelessness Theory of Depression

In contrast to Beck’s theory, which explores the role of cognitive structures in vulnerability to depression, others have begun to investigate cognitive styles involved in vulnerability to depression. The hopelessness theory of depression posited by Abramson, Metalsky, and Alloy (1989) has been an influential recent theory that seeks to explore a maladaptive cognitive style involved in depression. This theory is built upon the reformulated theory of learned helplessness and depression set forth by Abramson, Seligman, & Teasdale (1978), which focused on depressed individuals’ attributions about the causes of events and their beliefs about whether aversive events could be avoided. In this theory, attributional style was seen as the key cause for depression. It was specifically proposed that individuals who made global, stable, internal attributions for negative events, and specific, unstable, and external attributions for positive events were more likely to develop depression.

The hopelessness theory of depression put forward by Abramson, Metalsky, and Alloy (1989) built upon this initial theory. This theory states that a subtype of depression exists that is primarily characterized by hopelessness, and that this hopelessness is a proximal sufficient cause of hopelessness depression. The two core elements of this

proximal sufficient cause are (1) the presence of negative and stable expectations that highly desired outcomes will not occur or that highly aversive outcomes will occur and (2) the presence of helplessness. Helplessness is defined as the belief that expected negative outcomes will occur no matter how the individual responds (Ingram, Miranda, & Segal, 1998). Thus, helplessness constitutes a necessary but not sufficient causal factor of depression in this theory.

The end result of these negative expectancies and beliefs is believed to be the appearance of a generalized sense of hopelessness (Abramson, Metalsky, & Alloy, 1989). The maladaptive cognitive style that is believed to appear within the individuals experiencing this sense of hopelessness is a depressogenic attributional style. This cognitive style involves characteristically inferring that the causes of negative life events are internal, stable (persistent over time), and global (widespread) by nature. Individuals making these attributions are also believed to catastrophize and exaggerate the consequences of the negative life events. The net effect of this process is that they begin to feel personally flawed, worthless, and ultimately hopeless about their lives in the future. (Alloy, Abramson, & Francis, 1999). It is believed that individuals possessing this type of negative thinking style are more vulnerable to developing hopelessness depression when faced with stressful events. Hopelessness depression has been hypothesized to be a subtype of depression, characterized by its own causes, symptom profile, course, appropriate methods of treatment, and means of prevention (Abramson, Metalsky, & Alloy, 1989). Symptoms of hopelessness depression are believed to include: retarded initiation of voluntary responses, sad affect, suicidality, lack of energy, apathy,

psychomotor retardation, sleep disturbance, concentration difficulties, and mood-exacerbated negative cognitions (See also Metalsky & Joiner, 1997).

Research regarding the hopelessness theory of depression has been largely supportive. In particular, the Cognitive Vulnerability to Depression (CVD) Project, a recent prospective study done by Alloy and colleagues (1999), showed that negative cognitive styles do indeed constitute risk for both first onset and recurrence of clinically significant depression. These findings were uniquely significant. Previous studies had supported the presence of negative cognitive styles in depressed individuals, but the CVD study found this type of negatively biased cognitive processing to be not only characteristic of currently depressed individuals, but also prospectively present in cognitively vulnerable non-depressed individuals who later developed depression.

Native Americans and Cognitive Vulnerability to Depression

In response to these promising research findings, the current work will focus primarily on exploring the maladaptive cognitive style believed to confer vulnerability to depression within Native Americans. Specifically, the current study will focus upon applying elements of the hopelessness theory of depression supported by the CVD studies, which addresses such maladaptive cognitive styles, to both a Native American and a Non-Native American sample. The variable of interest under examination will be the attribution style individuals tend to use with regard to negative life events or stressors. In addition to the measurement of hopelessness depression, the current study will assess hopelessness itself in this population as it is measured by the Beck Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974).

As stated previously, the CVD theory posits that the mechanisms believed to confer cognitive vulnerability to depression are these negative attributional styles. It is believed that these maladaptive cognitive styles may develop early on and remain latent as diathesis for possible later development of depression to be activated by environmental stressors. It is unclear how Beck's construct of hopelessness exists with regard to this hypothetical process. As a result the hopelessness construct will be measured to attempt to clarify its role with regard to potential cognitive vulnerability in the current samples. The resultant theoretical model was tested in the current study as a description of the etiology of depression in Native Americans.

However, before such an application of theory can proceed, an examination of relevant proximal and distal risk factors must occur. The discussion will begin with an examination of the distal risk factors experienced by many Native Americans. As was seen Native Americans have a unique set of environmental predisposing factors, which may serve to establish them as a particularly vulnerable population to depression.

Distal Risk Factors

General Distal Risk Factors for Depression in Native Americans

Before addressing the distal cognitive aspects that may confer vulnerability to the development to depression, it is first important to appreciate how Native Americans experience predisposing factors in more general ways. The literature has shown that genetic factors may play at least a partial role in the etiology of depression (Downey & Coyne, 1990). In particular, numerous studies have consistently shown that children of depressed parents, as well as close relatives of depressed individuals, are at a significantly higher risk for developing major depression as well as other forms of

psychopathology (Weissman et. al., 1987). These findings not only point to a possible genetic antecedent but also to the role of the environment (e.g. parenting) in depression (Ingram, Miranda, & Segal, 1998). Indeed, a more descriptive manner of addressing the etiology of depression is to use a biopsychosocial approach to causation. In such an analysis parental interactions, the environment in general, as well as genetically transferred elements, are seen as interacting to increase the risk for psychopathology in these children. Following then from the aforementioned prevalence of depression in Indian communities, higher proportions of Native children are the offspring of depressed parents. Thus, genetic as well as environmental variables (including psychological and social environments) may be contributing to elevated risk for depression for these Native Americans.

Indeed environmental variables constitute an important group of distal risk factors working to increase the risk of psychopathology for Native Americans. One rather counterintuitive implication may be that the importance of extended families and community to many Native Americans may actually exacerbate this statistical risk. That is, due to the prevalence of depression many Native American children may be frequently exposed to depressed role models and also experience care-giving and socialization from a depressed adult. American Indian women have been seen as at heightened risk for many factors associated with depression, such as poverty, lack of formal education, and having larger numbers of children (McGrath et. al., 1990). Accordingly, many Indian children may find themselves in a “depressed” environment, which may further work to increase their risk for depression. Indeed, social learning theory has shown the powerful influence of the social milieu in human development (Bandura, 1977). Indeed, children learn how

to interact with their environment and interpret events by observing important individuals in their lives such as parents or care providers and modeling their behavior (Bandura, 1977). When Native American children are exposed to depressed role models and caretakers it is likely that this will have an impact upon their development. Recent reviews (Alloy et al., 1999; Chiarrello & Orcaschel, 1995) describe the relationship between parent and child depression. They suggest that parental depression may impact children's risk for depression by interfering with the parent's capacity to relate to the child. In particular, Jaenicke (1987) found that depressed mothers often display a critical, threatening, and commanding interactional style that actually predicted later development of negative cognitive styles in children. A similar process of interactional learning may potentially be present with children of depressed Native American mothers or caretakers.

Native Americans are also exposed to many other environmental risk factors for mental health problems. It is well documented that substandard socioeconomic conditions exist in many Indian communities. High rates of unemployment, severe poverty, alcohol abuse, physical illness, early death, and frequent loss characterize many Indian reservations. Indeed, twice as many Indians live below the national poverty level, and unemployment rates are consistently high. Indeed, ranges from over 80% on some reservations to about 30% on some more prosperous ones (U.S. Bureau of Census, 1984b; U.S. Senate Select Committee on Indian Affairs, 1985.) These rates are the highest of any major ethnic group in the United States (Brod & McQuiston, 1983). Indeed, all of the aforementioned problems have been associated with mental health problems (U. S Congress, 1990).

Regarding the overall health status of Indians the most significant indicator is the fact that Indians do not live as long as other U.S populations. In addition to the aforementioned high rates of suicide among Native Americans, accidental as well as violent death are tragically more common occurrences in this population. Indeed, an Indian living on a reservation is 6.3 times as likely to die as a result of homicide than a member of the general U. S. population. (U. S Congress, 1986)

A high rate of alcoholism is intertwined with susceptibility to depression. Results from the Epidemiological Catchment Area (ECA) study on Non-Native Americans suggest that about 30% of people diagnosed with depression have an additional lifetime diagnosis of alcoholism, and 40% of alcoholics have a lifetime diagnosis of depression (Regier, et. al. 1990). In other words, due to high rates of alcoholism and alcohol abuse, many Native Americans may be at subsequent higher risk for developing depression. Alcohol is another environmental variable that has pervasive impacts on many Native Americans and may further contribute to vulnerability to depression. The death rates from cirrhosis and liver disease are indicative of the tragic nature of this impact. In one Indian Health Service Area this rate of death was 10 times the national rate and in no Area were these rates of death below the national rate (U. S. Congress, 1986). This is perhaps the most extreme illustration of the pervasive effects that alcohol has upon this population.

Child abuse and neglect are also common consequences of many of the aforementioned problems afflicting many Native Americans. Childhood sexual abuse is a very common and frequently cited antecedent to depression in Native American females. This has resulted in young American Indian women being much more prone to

depression than American Indian males (LaFromboise & Howard-Pitney, 1995). In a report on the health status of Native American youth, Robert Blum and his colleagues (1992) found that of the 13,454 Indian youths surveyed 23.9% of females reported physical abuse and 21.6% reported sexual abuse by the 12th grade.

An additional environmental stressor unique to the Native American experience is stress experienced due to acculturation. Acculturation stress is a result of demands to integrate into, and identify with a different more dominant culture (Mail, 1989). Many studies have shown that rapid acculturation is associated with higher rates of suicidal behaviors. Philip May (1987) found that Indian communities with the highest rates of rapid change and acculturation stress generally had the highest rates of suicides. Van Winkle and May (1986) also found that acculturated tribes had the highest rates of suicide, traditional tribes had the lowest, and “transitional” tribes had intermediate rates. Since adolescence is a time in which young people are desperately attempting to form an identity and are faced with many difficult choices, it logically follows that Indian youth seem to be the group most severely impacted by acculturation stress.

“Deculturation stress” is a term associated with this acculturation stress. As Native Americans face demands to integrate into and identify with a different, more dominant, culture, they may also begin to lose or perhaps devalue their historical traditions. This leads to what is termed deculturation stress. (Mail, 1989). The idea is an outgrowth of research addressing the phenomena labeled “historical unresolved grief.” This theory posits that, due to the massive losses of lives, land, and culture from European contact and colonization, American Indians have experienced a long legacy of chronic trauma and unresolved grief. It is believed that this experience has spanned many

generations and continues to contribute to the current high rates of suicide, homicide, violence, child abuse, alcoholism, and social problems among Indian people (Brave Heart & DeBruyn, 1998)

Given the bleak status of Indian country, consequent high rates of problems in mental health among Native Americans are not at all surprising. Taken as a whole the environmental risk variables experienced by many Indian people may serve as a “platform” which serves to establish heightened risk for psychopathology, in particular depression.

Cognitive Distal Risk Factors for Depression

Now that we have gained an understanding of the manner by which Native Americans make up a statistically vulnerable population in general, we can examine the way in which cognitive theories of depression define cognitive distal risk factors and how this may apply to Native peoples. As stated earlier, the most influential cognitive theories of depression focus on the maladaptive cognitive styles and structures present in depression. The hopelessness theory of depression addressed the maladaptive cognitive styles involved, the focus of the current study. In terms of distal risk factors conferring vulnerability to depression, we will see that the genesis of depressogenic cognitive styles may occur relatively early in the developmental process.

Attributional Style Development

In line with the hopelessness theory of depression the attributional style involved in depression is believed to be central to the development of hopelessness depression. This attributional style is characterized by the individual believing that the causes of negative life events are internal, stable (persistent over time), and global (widespread) in

nature and that the consequences of the negative life events are catastrophic and imply that he or she is flawed or worthless (Alloy, Abramson, & Francis, 1999). As stated earlier the presence of such negative cognitive styles has been shown to confer vulnerability to depression in prospective studies (Alloy, et al. 1999).

The question that begs asking is how these negative cognitive styles develop. Research based upon the hopelessness theory of depression as well as its theoretical predecessor, the reformulated learned helplessness model of depression, has established a link between the presence of negative attributional style and depressive symptoms in childhood and adolescence (Haines, Metalsky, Cardamone, & Joiner, 1999; Seligman et al., 1984). In a review of this literature Haines (1999) and her colleagues found this relationship to be present in children from the first grade to 16 and 17 year olds. In particular, the negative attributional style appears to play a significant role in depressive symptoms among older children.

In terms of the origin of attributional styles interpersonal experience and familial background have been implicated as potential antecedents to negative attributional styles. Parental depression, particularly maternal depression, has been widely cited as a possible antecedent (Alloy, Abramson, & Francis, 1999; Jaenicke et al., 1987). Aside from the possible genetic factors also inherent in these findings, there are also many interpersonal experiences involved in the parent-child interaction. A subsequent model directed at understanding the origins of attributional style has been proposed by Haines, Metalsky, Cardamone, and Joiner (1999). This model proposes that three interpersonal realms should be expected to play important interrelated roles in the development of attributional style: (a) family experiences and parent-child relationships, (b) peer relationships, and (c)

teacher-child relationships. It is believed that consistently negative experience in these relationships increases the child's likelihood of developing a negative attributional style (Haines et al., 1999). A history of maltreatment, particularly emotional abuse, as well as modeling of depressive cognitive styles by parents or family may lead to the development of these styles (Alloy, Abramson, & Francis, 1999). Regarding peer relationships children who are rejected or victimized by peers are at higher risk for developing these attributional styles. (Haines et al., 1999) And, finally, with regard to teacher-child relationships, it is believed that children who consistently receive negative feedback from teachers may more readily develop these negative attributional styles (Haines et al., 1999).

Negative Attribution Style among Native Americans

Regarding Native Americans, it is possible that some Native American children may be developing negative attributional styles due to negative experiences in these domains. With regard to the familial relationship, a disproportionate amount of Native Americans suffer from depression, and consequently more Indian children are exposed to familial depression. Due to the modeling or possibly direct communication or feedback provided in this situation, many Indian children may be at a subsequently higher risk for developing negative attribution styles. Additionally, as previously mentioned many Indian children are subjected to abuse, which is often at the hands of a family member (Blum, et al., 1992). The presence of abuse could also add to feelings of hopelessness and worthlessness.

Regarding the peer relationships believed to contribute to the acquisition of a negative attributional style, Indian children who are in non-Indian schools or urban

settings may be at particularly high risk for social isolation and rejection by peers. This may relate to the consistent finding of higher rates of suicide within more acculturated tribes (May, 1987). Similarly, Indian children may also have difficulty establishing positive relationships with non-Indian teachers, particularly in urban settings due to acculturation stress and the effects of social isolation.

It is believed then that if Indian children develop such negative attributional styles, they may begin to distort reality in maladaptive ways. That is, they may then possess a cognitive style of processing information that could confer vulnerability to depressive symptomology both concurrently and prospectively (Alloy, Abramson, & Francis, 1999).

Negative Self-Referential Schema Development

As discussed earlier, negative self-referent schemas are the key cognitive structures believed to impart vulnerability to depression (Beck, 1967). In particular the negative schemas involved make up the negative cognitive triad, which involves negative views of the self, world, and future (Abramson, Alloy, & Metalsky, 1988). It is believed that that these negative schemas may develop early and remain as a latent diathesis for depression. So again the question becomes how these schemas develop and what factors may contribute to their appearance.

Similar to research on the development of attributional style, much of the research into schema development has focused upon children who are at risk for depression due to maternal major affective disorder, or on currently depressed children. Jaenicke and her colleagues (1987) note that studies have shown that depressed children display many of the same kinds of depressive cognitions as depressed adults. In particular, research has

shown that depressed children display more cognitive bias and less positive self-schemas than non-depressed children (Hammen & Zupan, 1984; Kaslow, Rehm, & Segal, 1984). Also, it was found that children at risk for depression due to maternal affective disorder displayed more negative self-concepts and less positive schemas than other children (Jaenicke et al., 1987). Available evidence has supported the notion that depressed mothers may transmit negative cognitive characteristics, which forms the basis for negative self-schemas in their children (Ingram, Miranda, & Segal, 1998). Inherent in this mode of increased susceptibility to depression is the role of the environment in negative schema development. It is believed that the model set forth by Haines et al. (1999) also applies to the development of negative self-schemas. It is proposed that negative experiences in familial/parent relationships, peer relationships, and/or teacher relationship may make the development of negative self-schemas more likely.

Adolescence appears to be a particularly vulnerable time for the development of negative self-schemas. This is due to the fact that the primary developmental challenge during this time is identity formation. Thus, negative relationship experiences endured in this period are believed to increase the risk of negative self-schema development. Sheeber, Hops, Alpert, Davis, and Andrews (1997) found that less supportive and more conflicted family environments were associated with greater depressive symptomatology among adolescents, both concurrently and prospectively over a one-year period.

Negative Self-Schema Development in Native Americans

Regarding Native American children and adolescents it seems reasonable to assume that the severe environmental risk factors mentioned previously lead to higher risks for the development of negative self-schemas. As stated before, adolescence is a

particularly difficult developmental period, and Native American adolescents are no exception. As noted, one of the main tasks of development is the formation of a personal identity, which can also be understood as a self-schemata. According to LaFromboise and Howard-Pitney (1990), American Indian adolescents are further challenged by (1) acculturation pressures; (2) poverty, which limits hope for the present and future; (3) the multigenerational effects of alcoholism; and the (4) frequent occurrence of deaths in the family and community. All of these factors may make it much more likely that many more Native Americans will develop negative self-referent schemas, which in line with Beck's cognitive theory of depression could establish a latent diathesis for depression that could later be activated by proximal risk factors. Research done on self-esteem and alienation done with Indian adolescents suggests that Native American teenagers do indeed have more negative views of themselves than is the norm for Non-Native teens (U. S. Congress, OTA, 1990). In a governmental review of the status of Indian adolescents it was found that Indians often characterized themselves as friendly, helpful, easy-going, but not as being particularly smart, strong, or good looking (Development Associates, 1983). This suggests that more Indian children may be more susceptible to developing negative self-schemas, or indeed, may have already developed them.

Proximal Risk Factors

As stated earlier, proximal risk factors that may confer vulnerability to depression are precipitating factors that influence the actual timing of onset of episodes of depression. In line with our diathesis-stress model of the etiology of depression, we have up until now focused primarily on variables that contribute to or constitute diathesis for

depression. The time has come to briefly address what variables constitute stressors, which act to precipitate actual episodes of depression.

Negative Life Events as Stressors

Abramson, Alloy, and Metalsky (1989) clarified the diathesis-stress model for hopelessness depression. This hypothesized causal model begins with the occurrence of negative life events (or nonoccurrence of positive life events). These constitute the stressor. The stressor can activate hopelessness, which in turn can lead to an episode of hopelessness depression.

The diathesis-stress model of cognitive vulnerability to depression clearly states that depression is produced by an interaction of vulnerability factors and environmental conditions that serve to trigger this diathesis, with the result of active depression (Ingram, Miranda, & Segal, 1998). In terms of which environmental conditions may trigger this diathesis, a wide body of literature suggests that negative life events constitute the stressors, which precipitate episodes of depression, physical illness, and mental disorders in general (See Rabkin & Struening, 1976 for review.) The question of what types of events constitute negative life events or social stressors is complex to address. Holmes and Rahe (1967) have defined social stressors as the occurrence of any circumstance which signifies or requires changes in the individual's life pattern. The stress concept has been delineated into a number of different forms. The first type of stressor occurs as a result of significant life events interpreted by the individual as undesirable (Luthar & Zigler, 1991; Monroe & Peterman, 1988). Examples of this type of stressor include loss of employment, divorce, illness, death of a loved one, as well as the abuse of alcohol. A second type of stressor involves an accumulation of minor events and hassles

(Dohrenwend & ShROUT, 1985; Kanner, Coyne, Schaefer, & Lazarus, 1981). In other words, minor stressful events appear to have an additive effect. A third type of stressor, pointed out by Luthar and Zigler, occurs due to the important influence of socioeconomic status. Low maternal educational status or membership in an ethnic minority might constitute indices reflecting chronically stressful living circumstances. The occurrence of stressors is believed disrupt an individual's physiological and psychological homeostasis, which is believed to increase vulnerability to psychopathology in general (Monroe & Peterman, 1988).

Stressors and Native Americans

When the focus shifts back to Native Americans and their exposure to stressors, a clear conclusion to draw is that Indian people are exposed to a disproportionate amount of stress. A direct illustration of a unique stressor endured by Native Americans is an outgrowth of their minority status. As Luthar and Zigler (1991) pointed out, membership in an ethnic minority with low socioeconomic status is a general indicator of the presence of stressful living conditions and Native Americans exhibit a tragic illustration of these phenomena. As noted above, Native Americans are subjected to disproportionate amounts of poverty, unemployment, alcoholism, physical illnesses and deaths (U. S. Congress, OTA, 1990). These negative life circumstances fuel the high rates of violent crime found in many Indian communities, including homicide, domestic violence, and child abuse (Blum, et al., 1992; U.S. Congress, 1986 & 1990). In short, many Native Americans are frequently exposed to both significant and more minor negative life events and this works to establish this population as highly vulnerable to psychopathology in general and to depression in particular.

A Model of Cognitive Vulnerability to Native American Depression

Now that an appreciation of the ways in which Native Americans may be vulnerable to depression both cognitively and environmentally has been achieved, it is possible to envision a model for understanding Native American Depression. As mentioned earlier, the emerging model includes a dynamic interplay of both distal and proximal risk factors establishing a diathesis or vulnerability for the development of depression.

Insert Figures 3 and 4 about here.

As seen in Figure 3, latent cognitive processing variables (i.e. the diathesis) are believed to develop distally and are believed to result from the interaction between environmental and constitutional variables unique to each individual. These latent cognitive processing variables can also be composed of factors that predominantly make an individual more resilient and thus more immune to depressive symptoms (Cognitive Resiliency to Depressive Symptoms or CRDS). Conversely, the latent cognitive processing variables can be predominantly composed of factors that will make the individual more vulnerable to depressive symptoms (Cognitive Vulnerability to Depressive Symptoms or CVDS). CVDS factors are believed to be composed of negative attributional style and/or the presence of negative self-schemas. In contrast, the more helpful CRDS factors are believed to consist of positive attributional style or the presence of positive self-schemas or concepts.

Figure 4 illustrates the process believed to occur proximally in this diathesis-stress model. First, when the individual experiences a stressor or a negative life event occurs, this experience acts as a catalyst or trigger actualizing previously latent cognitive processing factors (CRDS or CVDS). At this point these cognitive processing variables interact with the stressors experienced to cause the depressive symptoms displayed. If cognitive resiliency (CRDS) factors are triggered, the individual displays healthy coping behavior as an outcome and may avoid an episode of symptoms. This hypothesized pathway is illustrated in the top portion of Figure 4. It is important to note that if healthy coping behavior occurs it is believed to reinforce and strengthen the factors of resiliency. Conversely, if cognitive vulnerability (CVDS) factors are triggered, the individual may display symptoms or an episode of depression may ensue. This hypothesized pathway is illustrated in the bottom portion of Figure 4, and it is this more “pathological” etiological pathway that is the focus of the current study. Interestingly, if a depressive outcome is the ultimate result of this process the amount of stressors experienced will interact with the cognitive vulnerability factors to exacerbate the depression, demonstrating the cyclical nature of depression. Therefore, it is important to keep in mind that this process can constitute a vicious cycle, and at every level of the model the community is also impacted. Indeed, children are in a particularly vulnerable position due to their ongoing cognitive and emotional development and their reliance or dependency upon the adults around them. Therefore, children may be impacted in many ways by this model of depression phenomenology and etiology. As mentioned previously, this impact may be particularly detrimental if the depressed individual is a parent or family member. Finally, this process is believed to contribute to vulnerability to depression in the community in a

more general way as well. It may well be that the community at large may have a bi-directional relationship with the individual's vulnerability to depression. Communities are important areas of social interaction in which individuals share many experiences and social exchanges. It follows that the more depression experienced by individuals in a community, the more healthy individuals are exposed to individuals experiencing symptoms of depression. Thus, a "depressogenic" atmosphere and system may well begin to develop. This atmosphere may help to elevate levels and episodes of depressive symptoms experienced by the community in general. However, for the purposes of the current study the primary area of interest will remain at the level of the individual and the development of depressive symptoms in response to an individual's negative life experiences.

It is suggested that Native Americans fit particularly well in this diathesis-stress model of depression. Because of heightened susceptibility to environmental risk factors and therefore to the historical development of cognitive vulnerability to depressive symptoms, many Native Americans may possess latent cognitive vulnerability to depressive symptoms. However, it is also very evident that many Native Americans display an incredible amount of resiliency factors in the face of staggering environmental stressors. What remains rather unclear is how cognitive processing factors such as vulnerability to depression may act as "third variables" impacting the experience of stressors and the later development of or resistance to depressive symptoms. Two possible roles cognitive vulnerability may play are that it may moderate or mediate the relationship between stress and depression.

Following Baron and Kenny (1986), moderation is understood to be the influence of a third variable that qualifies the effect of an independent variable on a dependent variable. Therefore a moderator variable interacts with an independent variable's effect upon a dependent variable. This variable is believed to impact the direction and magnitude of the relationship between the independent variable and the dependent variable.

In contrast, mediator variables are present when an independent variable affects the dependant variable indirectly through the mediating variable. In essence, the mediator variable accounts for the relationship between the independent and dependent variable. The question then involves the role that this set of variables (cognitive vulnerability factors) may play among some Native Americans. Cognitive vulnerability may act as a moderating variable, interacting with stress to impact depression levels. In contrast, cognitive vulnerability may mediate the relationship between stress and depression. That is stress may act upon depression levels indirectly through cognitive vulnerability, as a main effect solely, or potentially not at all. This thesis attempts to determine how cognitive vulnerability may impact the relationship between stressors or negative life experiences and the development of depressive symptoms in Native American and Non-Native American populations.

In light of the disproportionate experience of negative life events or stressors experienced by Native peoples, the hypothesized latent vulnerability has a higher probability of being triggered or actualized in members of this population. As a result, many Native people may be highly prone towards developing depression in this manner.

Of course, the cyclical nature of the model could help explain the aforementioned disproportionate rates of Native American depressive and suicidal symptomology.

However, regarding vulnerability it is important to understand one vital notion. While vulnerability is generally understood to be a relatively stable trait that may be somewhat resistant to change, it is not necessarily unalterable or permanent (Ingram, Miranda, & Segal, 1998). Therefore, the potential view of some cognitively vulnerable Native Americans that will emerge easily lends itself to hopeful and important treatment and preventative implications. For the current study, this diathesis-stress model was examined in both Indian and Non-Indian populations. This approach may help to highlight important unique differences that may be present in tribal populations.

Hypotheses

Results were expected to show that the Native American sample scores fits particularly well within this theoretical etiological model. To investigate this larger research hypothesis multiple procedures were conducted to address three general hypotheses.

1. Initially, statistical tests of mean differences between the groups were conducted. It was hypothesized that the Native American and Non-Native Americans would receive different scores on the measures of stressors, cognitive style, acculturation, and depression. Specifically, Native Americans were expected to report more symptoms of depression and more negative life events or stressors. It was unclear what results would be found with regard to cognitive style and acculturation. It had been proposed that if significant differences were detected, an analysis of simple main effects would be conducted to locate the important areas of distinction between the two groups.

2. After these initial explorations, the theoretical model was tested using a hierarchical regression. The regression analyses investigated the role that hypothesized cognitive vulnerability plays with regard to stressors and depressive symptoms. It was hypothesized that stress and hypothetical cognitive vulnerability would predict a significant amount of the variance in depression scores, and that it might also act as a third variable either moderating or mediating a person's susceptibility to depression (Baron & Kenny, 1986). The criteria established by Baron and Kenny (1986) for mediation and moderation were used to determine the status of cognitive vulnerability with regard to depression symptoms. The exploratory regression analyses were thus used to determine whether cognitive vulnerability plays a moderating or mediating role upon the experience of depression in both the Native and Non-Native samples (See Figure 5 & 6 for the proposed regression models.)

Insert Figures 5 & 6 about here.

Figure 5 illustrates the regression models that tested the moderator hypothesis. In this model, life stressor scores and cognitive vulnerability factor scores were used to predict depression scores both individually and as interacting predictors. Due to the fact that regression model was used to test the moderator hypothesis the interaction between the two predictors was used to predict the criteria variables of depression scores.

Figure 6 illustrates the regression models of prediction that tested the mediator hypothesis. In this model, the proposed mediating variable (cognitive vulnerability) was regressed upon the independent variable (stressors score), path a., and upon the criteria

variable (depression), path b. The stressor scores are also used to predict depression scores in isolation in this model (path c.) These exploratory path models were created to analyze the relationship between the variables under study. The models are aimed at investigating (1) whether or not predictions based upon the cognitive vulnerability to depression are supported, (2) how the predictors are influencing the downstream criterion variable, and (3) if any differences exist between the two criterion measures (BDI & HDSQ). In addition, the fits of these models will be evaluated separately for the Native American and non-Native American samples.

Insert Figure 7 about here.

Methods

Participants

Participants in this study were 136 males and females from the Salish and Kootenai Community College and the Blackfeet Community College. Females comprised 69% ($n = 98$) of the sample, while males accounted for 37% ($n = 37$) of the sample. The average age of the participants was 31, and the ages ranged from 18 to 73. Each subject filled out a short demographic questionnaire to determine ethnicity or cultural/racial status, mental health history, socio-economic status, gender, and age. Approximately half of the people in the sample were single, 29% were married, 3% separated, and 13% were divorced. The average monthly income reported for the sample was \$1,094.00 ($sd = \$1,190$) and the average yearly income was \$16,182.00 ($sd = \$20,938$). Most of the sample participants ($n = 89$) had 1 or more children ($mean = 1.77, sd = 1.022$).

Regarding ethnicity or cultural background, 65% of the members of the sample identified themselves as Native American or American Indian ($n = 93$), 36.4% as Caucasian ($n = 52$), 1.5% identified themselves as Hispanic or Latino(a) ($n = 2$), .7% as Pacific Islanders ($n = 1$), and .7% as Alaska Native/Inuit ($n = 1$). It should be noted that some participants chose to identify their ethnicity in multiple categories; this was usually evident with some Native Americans who also endorsed having Caucasian ethnicity. This occurred approximately twenty times, and in this case the individuals were considered to be in the Native American sample. Regarding the Tribal Affiliation of the Native American participants ($n = 93$), 53 were enrolled members of federally recognized tribes, and the remaining 40 were descendants of federally recognized tribes. Sixty four individuals were Blackfeet descendants (57 enrolled), 13 were Chippewa (5 enrolled), 9 were Salish and or Kootenai (1 enrolled), three were Lakota, two were Assiniboine, 2 were Atsina, one was Apache, one was Crow, one was Northern Cheyenne, and eight others classified themselves as having “other” tribal affiliations.

Participants in this study were divided into two samples: Native American and Non-Native American. This group separation was accomplished by using each participant’s self-report of their ethnic identity to categorize them into the respective groups. The individuals who reported their ethnicity as Native American or Alaska Native/Inuit made up the Native American sample and those who did not report their ethnicity as Native American (Caucasian $n = 52$, African American $n = 0$, Hispanic or Latino/a $n = 2$, Asian American $n = 0$, and Pacific Islanders $n = 1$) made up the Non-Native American sample. Thus, the Non-Native American sample was overwhelmingly comprised of Caucasian individuals.

Materials

Attribution Style Measure

Metalsky and Joiner's (1997) Extended Attribution Style Questionnaire (EASQ) was used to assess the negative attributional style believed to confer cognitive vulnerability to depression. This measure consists of 12 hypothetical negative life events. Participants were asked to write down the one major cause for each event, in an open-ended format. They were then asked to rate the cause of the event on six 1-7 point scales referring to degree of Causation, Future, Globality, Catastrophizing, Internalization, and Importance. Each participant's scores were then computed. Scoring was achieved by adding the scores for each of the aforementioned subscales, and these subscale scores were then combined to form an overall cognitive vulnerability score, computed by adding the subscale scores. The higher the EASQ score the higher the hypothetical cognitive vulnerability present for the individual. The EASQ has been found to have good construct validity (See Metalsky & Joiner, 1997 for review). The internal consistency coefficients were computed for the samples in the current study as well. The Total sample ($n = 136$) had an *alpha* coefficient of .95 for the entire measure and the Causation, Future, Globality, Catastrophizing, Internalization, and Importance subscales had the following *alpha* coefficients respectively: .80, .85, .80, .82, .90, and .86. The Native American sample ($n = 92$) had an *alpha* coefficient of .95 for the entire measure and the Causation, Future, Globality, Catastrophizing, Internalization, and Importance subscales had the following *alpha* coefficients respectively: .82, .84, .78, .85, .90, and .89. Finally, the Non-Native American sample ($n = 43$) had an *alpha* coefficient of .95 for the entire measure and the Causation, Future, Globality, Catastrophizing, Internalization, and

Importance subscales had the following *alpha* coefficients respectively: .72, .85, .84, .78, .93, and .76.

Stressors

Stressful life experiences were measured with the Hammen Perception of Negative Life Experiences Survey (HPNLES; Hammen, Marks, Mayol, & DeMayo, 1985). This is a 120 item self-report measure of life experiences in which subjects are asked to rate the positive and negative impact of events that occurred over the four weeks prior to the time of assessment. The life experiences measured included the following categories; work and/or school, finances, health, romantic relationships, home, friends, family life, and other personal events. For each event that occurred in the specified time interval the participants are asked to indicate the relative impact of the event by rating it on a Likert scale ranging from -3 (extremely negative impact) to +3 (extremely positive impact). Test-retest reliability has been reported to be $r = .79$ over a five week period (Klocek, Oliver, & Ross, 1979). The number and perceived impact of stressors were computed for this study's sample and used as predictors. In order to analyze the differential impact of perceived stressors the HPNLES scores were divided into perceived negative stressors, positive stressors, and all stress. Only the negative stressors score was used in this study. It was hypothesized that perceived negative stressors would be more powerful predictors of depression scores based upon previous research, and it is this subscale that is emphasized in the rest of this report. The internal consistency of each subscale was also computed for the samples of this study. The Total sample ($n = 136$) had an *alpha* coefficient of .98 for the negative life events, the Native American sample ($n =$

92) had an *alpha* coefficient of .98 for negative life events, and the Non-Native American sample ($n = 43$) had an *alpha* coefficient of .98 for negative life events.

Depression

Levels of depressive symptoms were assessed using two measures: the Hopelessness Depression Symptom Questionnaire (HDSQ, Metalsky & Joiner, 1997) and the Beck Depression Inventory (BDI, Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1987). The BDI-II is a widely used instrument to assess depression symptom severity. This second edition of the BDI is 21-item self-report questionnaire; it has been well-validated as a measure of general depressive symptomatology (See Beck, Steer, & Garbin, 1988 for review). Measures of internal consistency were computed for the current study. The Total sample ($n = 136$) had an *alpha* coefficient of .88, the Native American sample ($n = 92$) had an *alpha* coefficient of .88, and the Non-Native American sample ($n = 43$) had an *alpha* coefficient of .88.

The Hopelessness Depression Symptom Questionnaire (HDSQ, Metalsky & Joiner, 1997) was also used to measure symptoms of hopelessness depression. The HDSQ is a 32 item self-report measure that allows individual symptoms as well as combined clusters of symptoms of hopelessness depression to be examined. The HDSQ is designed to measure the following symptoms: (a) Motivational Deficit (items 1-4); (b) Interpersonal Dependency (items 5-8); (c) Psychomotor Retardation (items 9-12); (d) Anergia (items 13-16); (e) Apathy/Anhedonia (items 17-20); (f) Insomnia (items 21-24); (g) Difficulty in Concentration/Brooding (items 25-28); and (h) Suicidality (29-32). This scale has been shown to be a valid measure of a subset of depressive symptoms and experiences, and the authors reported an *alpha* coefficient of .93 in the validation sample

(Metalsky & Joiner, 1997). Internal consistency measures (*alpha* coefficients) were computed for this measure in the current sample as well. The Total sample ($n = 136$) had an *alpha* coefficient of .94, the Native American sample ($n = 92$) had an *alpha* coefficient of .95, and the Non-Native American sample ($n = 43$) had an *alpha* coefficient of .93.

In addition, the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) was used to measure symptoms of hopelessness (as a potential vulnerability factor). The BHS is a 20 item self-report measure that assesses pessimistic attitudes. Each item is rated true or false and a composite score is calculated, resulting in a total score ranging in value from 0 to 20. The measure is a widely used and well-validated instrument, with previous internal consistency studies demonstrating high reliability as well as concurrent and construct validity (Beck & Steer, 1988 & Durham, 1982). For the current study, the total sample ($n = 136$) had an *alpha* coefficient of .84, the Native American sample ($n = 92$) had an *alpha* coefficient of .85, and the Non-Native American sample ($n = 43$) had an *alpha* coefficient of .83.

Acculturation Measures

The Orthogonal Acculturation Scale (Oetting & Beauvais, 1991-1992) was used to measure acculturation and personal cultural identification in an exploratory manner secondary to self-report of cultural identification. The primary determination of cultural group affiliation used to form the groups in this study was made based upon each participant's identification of cultural group affiliation or self report of ethnicity and this primary identification was used in most of the statistical analyses of this study. Native American participants who also identified themselves as Native American/American Indian or Alaska Native/Inuit were considered to be Native American. Participants who

identified themselves as Caucasian were considered to be Non-Native American. Primarily the Acculturation measure was compared to self-reported cultural identity to assess the validity of its use among the populations in this study. Specifically, it was compared to the cultural group status and level of acculturation assessed in the self-reported demographic section of the measures. The Acculturation study has five subscales. They are Native American cultural affiliation, White American/Majority cultural affiliation, Hispanic/Mexican American cultural affiliation, African American cultural group affiliation, and other cultural group affiliation. For the current study internal consistency measures were computed for the Native American cultural affiliation and the White American/Majority cultural affiliation scales from this measure. The Total sample ($n = 136$) had an *alpha* coefficient of .82 for the entire measure and *alpha* coefficients of .95 and .95 for the Native American Acculturation and Caucasian American Acculturation subscales respectively. The Native American sample ($n = 92$) had an *alpha* coefficient of .87 for the entire measure and *alpha* coefficients of .92 and .95 for the Native American Acculturation and Caucasian American Acculturation subscales respectively. Finally, the Non-Native American sample ($n = 43$) had an *alpha* coefficient of .82 for the entire measure and *alpha* coefficients of .91 and .78 for the Native American Acculturation and Caucasian American Acculturation subscales respectively.

Procedures

These measures presented to the participants in a small group setting. Each participant was fully informed of his or her rights as a research participant and voluntarily agreed to complete the questionnaire packet. Each participant received a packet of

merchandise from the University of Montana's Bookstore worth approximately \$8.00 for their participation in the study.

Analyses

The measures were then scored and means and standard deviations were calculated for each of the groups' measurements. Correlation matrices were created for each group, and independent sample *t*-tests were conducted upon each of the groups' mean scores for the various measures to test for gender differences and for differences based upon Native vs. Non-Native group affiliation. In addition, the Native American and White American subscales of the Oetting Orthogonal Acculturation scale were correlated with the various measures to determine if any important relationships existed between these subscales and the various measures. Then *t*-tests and the correlations were computed to determine if significant group differences existed between the Native and Non-Native groups' responses to the measures and to determine potential gender differences.

Hierarchical multiple regression analyses were then conducted with the data (Cohen & Cohen, 1983). This procedure was used to test predictions based upon the hypothesized diathesis-stress model. The predictor variables were the HPNLES scores and the EASQ scores. In addition to individual predictors, interactions between the variables, using terms composed of the products of each of the variable's mean-centered scores, were analyzed to test the moderation hypothesis. The criterion variables were the HDSQ and BDI scores.

The hierarchical regression analysis was conducted to determine relative importance of each predictor in relation to the criterion variables. Each of the predictor

variables was used in multiple regression to predict each of the criterion variables. The predicted variance (R^2) and change in predicted variance (ΔR^2) for each of the predictor variables were computed and analyzed for significance. The standardized regression coefficients (*Beta*'s) were then examined to determine the relative importance of each of the predictors. The squared partial and semi-partial correlations were also examined to determine the unique contributions of each of the predictors to the overall R^2 value for each of the criterion variables. Potential interactions were examined in this analysis by using the mean scores for the predictors of interest (after each score was centered on its own respective mean.)

Results

The initial *t*-tests conducted to determine whether or not significant group differences existed; these indicated that the Native American sample reported significantly lower monthly income (Native sample *mean* = \$956.43, *sd* = \$870.98; Non-Native sample *mean* = \$1,381.41, *sd* = \$1,445.62, $t[df=130] = -1.942, p = .05$) and yearly incomes (Native sample *mean* = \$13,094.60, *sd* = \$14694.76; Non-Native sample *mean* = \$22,574.30, *sd* = \$29,206.42, $t[df=130] = -2.485, p < .01$) and had significantly fewer years of formal education (Native sample *mean* = 13.01, *sd* = 1.84; Non-Native sample *mean* = 13.72, *sd* = 1.68, $t[df=132] = -2.141, p < .05$). In addition, the Native American sample reported experiencing significantly more negative life events and total stressors or life experiences (Native sample negative events *mean* = 22.67, *sd* = 26.035, total events- *mean* = 39.44, *sd* = 31.19; Non-Native sample negative events *mean* = 14.09, *sd* = 13.05, total events *mean* = 24.96, *sd* = 17.84; Negative events $t[df=123] = 1.987, p < .05$; Total events $t[df=123] = 2.757, p < .01$). Interestingly, the groups did not

significantly differ on the measures of depression or hopelessness (HDSQ, BDI-II, or BHS scores), nor the hypothesized overall cognitive vulnerability variable (EASQVUL). However, they did significantly differ with regard to two subscales of the EASQ involving attributions of future failures and attributions of catastrophic events (Future Forecasting and Catastrophizing subscales). Specifically, the Native American sample reported significantly lower tendencies for forecasting future failures due to current negative experiences and significantly lower tendencies to catastrophize about the future than their Non-Native counterparts (Native sample-Future Orientation $mean = 36.81, sd = 12.15$; Catastrophizing $mean = 28.51, sd = 11.78$; Non-Native sample Future Orientation $mean = 42.23, sd = 13.22$, Catastrophizing $mean = 33.19, sd = 14.05$; Future Orientation $t[df = 133] = -2.346, p < .05$; Catastrophizing $t[df = 133] = -2.017, p < .05$.)

With regard to the correlations among the variables the Native American sample showed significant positive correlations among overall cognitive vulnerability scores (EASQ) and HDSQ, BDI-II, and BHS scores (See Table 2 for results). In addition, in this sample there was a significant positive correlation between the negative stressors experienced and BDI scores. With regard to the subscales of the EASQ, the Native American sample demonstrated significant positive correlations between BDI scores and each subscale. The HDSQ scores were significantly positively correlated with the Globality, Catastrophizing, and Internalization subscales of the EASQ. The BHS scores were significantly positively correlated with the Globality, Future forecasting, Catastrophizing, and Internalization subscales of the EASQ (See Table 2 for values). Interestingly, when the Acculturation subscales were correlated with the various measures, the only statistically significant relationship that was found to exist was that

higher levels of White American Acculturation was significantly related to depression scores (BDI-II).

The correlations within the Non-Native sample also included significant positive relationships between stressors, cognitive vulnerability, and depression scores. Specifically, HDSQ scores were positively correlated with the BDI-II and HDSQ scores. In terms of the subscales of the EASQ, the BDI-II scores were significantly related to the Future Forecasting, Globality, Catastrophizing, and Internalization subscales. The HDSQ scores were significantly positively correlated with the Globality, Catastrophizing, and Internalization subscales of the EASQ. However, unlike the Native sample, the BHS scores were not significantly related to overall cognitive vulnerability or any of the subscales of cognitive vulnerability. With regard to stressors the Non-Native American sample's scores revealed significant positive relationships between negative events and BDI-II, HDSQ, and BHS scores. The total stressors experienced (positive and negative impacts) was only significantly related to the BDI-II and HDSQ scores, and these positive correlations were weaker than the correlations between the negative-impacting stressors and the depression scores (See Table 3).

Regarding the multiple regression analyses differential results appeared for the Native American and Non-Native American groups. The overall sample (including both groups) was analyzed first. The first model used Negative Stressors as the first predictor (due to its hypothesized stronger correlation with depression scores), then EASQ scores were entered, and finally the interaction term was entered (EASQ X Negative Stressors) to predict BDI-II scores; the third variable was used to test the moderation hypothesis. The results indicated a significant main effect for both the Negative Stressors ($R^2 = .109$,

$\Delta R^2 = .109, p < .01$) and the EASQ scores ($R^2 = .247, \Delta R^2 = .138, p < .01$) in predicting BDI-II scores. However, the interaction variable was not significantly predictive of BDI-II scores. Similarly, when the HDSQ scores were used as the criterion variable, significant main effects were found for the Negative Stressors ($R^2 = .115, \Delta R^2 = .115, p < .01$) and the EASQ scores ($R^2 = .213, \Delta R^2 = .098, p < .01$), and the interaction was again found to be a non-significant predictor of HDSQ scores (See Tables 4a-6b).

The mediation hypothesis was also tested for the total sample using multiple regression for the total sample. First, the stress predictor (Negative life events-HPNLES scores) was regressed upon the proposed mediator, the cognitive vulnerability variable (EASQ scores). Then the stress predictor was regressed upon the criterion variable of depression (BDI-II scores). Finally the last model regressed first the stress predictor upon the criterion, and then the cognitive vulnerability upon the criterion. Using Baron and Kenny's (1986) requirements for mediation, it was found that cognitive vulnerability was not a mediator of the relationship between negative stressors and depression because when the final model was tested stress was still found to be a significant predictor of depression scores. The mediation analyses were then conducted within each of the sub-samples (Native and non-Native). Similarly, the proposed mediational role of cognitive vulnerability was not supported in either sub-sample (See Tables 7a-9b).

For the Non-Native American Sample (primarily composed of Caucasian individuals; $n = 41$) linear multiple regression analyses described above to test for moderation were conducted. Again, this hierarchical regression model used Negative Stressors as the first predictor; EASQ scores were then entered; and finally the interaction term was entered to predict the BDI-II scores. This entire model was found to be

significant with significant main effects for Negative Stressors ($R^2 = .443, p < .01$), Cognitive Vulnerability ($R^2 = .569, \Delta R^2 = .126, p < .01$), and for the interaction or moderator term's (Negative Stressors x Cognitive Vulnerability) predictive ability of BDI-II scores ($R^2 = .613, \Delta R^2 = .043, p < .05$). When the HDSQ scores are used as the criterion variable significant main effects were found for Negative Stress ($R^2 = .484, p < .01$) and Cognitive Vulnerability ($R^2 = .538, \Delta R^2 = .064, p < .01$) but the interaction or moderator term was not found to be a significant predictor of HDSQ scores (See Tables 6a. & 6b.)

For the Native American sample ($n = 92$) the same linear multiple regression model was constructed to test for moderation. Again, this hierarchical regression model used Negative Stressors as the first predictor; EASQ scores were then entered; and finally the interaction term was entered to predict the BDI-II scores. This model was found have significant main effects for Negative Stressors ($R^2 = .071, p < .05$) and Cognitive Vulnerability ($R^2 = .189, \Delta R^2 = .118, p < .01$); however, in this case the interaction term (Negative Stressors x Cognitive Vulnerability) was not found to be significant. When the HDSQ scores were used as criterion variables significant main effects for Negative Stress ($R^2 = .077, p < .01$) and Cognitive Vulnerability ($R^2 = .165, \Delta R^2 = .088, p < .01$) were found, but the interaction term was not found to be significant (See Tables 5a. & 5b)

Discussion

Important differences between Native American and largely Caucasian samples were found with regard to the etiology of depression symptoms. Consistent with previous research, significant differences were found to exist between the two groups' incomes, educational level, and exposure to all forms of stressors. As documented, substandard

socioeconomic conditions exist in many Indian communities: high rates of unemployment, severe poverty, alcohol abuse, physical illness, early death, and frequent loss characterize many Indian reservations. This is hardly surprising, given, that there are twice as many Indians living below the national poverty level and witnessing consistently high unemployment rates, ranging from over 80% on some reservations to about 30% on some more prosperous ones (U.S. Bureau of Census, 1984b; U.S. Senate Select Committee on Indian Affairs, 1985.) Considering the fact that these rates are the highest of any major ethnic group in the United States (Brod & McQuiston, 1983) and that all of the aforementioned problems have been associated with mental health and physical health problems (U. S Congress, 1990), the current findings of group differences is hardly a surprise. Specifically, the Native Americans who participated in this study did have significantly lower incomes, less education, and more exposure to stressors of all forms, including negative life events, than their Non-Native American peers.

Yet, a significant surprising outcome did occur. Despite the fact Native American participants were exposed to more well known environmental risk factors, their depression levels, hopelessness, and overall cognitive vulnerability were not on average significantly different from those of their non-Indian peers. This finding was not only unexpected, it is in true discord with previous research concerning vulnerability to depressive symptomology. In fact, the Native American participants also reported significantly less of certain forms of depressogenic attribution styles than their Non-Native American peers. Specifically, the Indian sample reported significantly *less* cognitive tendencies to predict future failures due to current negative life experiences and to catastrophize about the future due to such current experiences. Thus, the Native

Americans, despite having more environmental risk factors such as negative life experiences, actually had lower forms of certain cognitive styles believed to increase vulnerability to depression. An additional important factor lies within the fact that Native American participants with higher levels of acculturation to White/Caucasian or majority culture reported significantly higher levels of depression ($r = .218, p < .05$). Thus, it appears that for the Native Americans in this study increased levels of acculturation to Caucasian or majority culture actually served as a risk factor for the development of symptoms of depression. Indeed, considering the entirety of incongruous and unexpected outcomes in this study, cultural identification to traditional Native American culture may actually serve as a protective factor for Native Americans. Although this proposition requires further investigation, any explanation of the current results must include an exploration the potential presence of protective factors. The fact that the Native Americans were exposed to significantly more well known environmental risk factors for depression, yet did not report significantly different or significantly elevated depression scores and even reported lower levels of some forms of cognitive vulnerability strongly argues for the presence of some form of resiliency to depression within the Native sample.

This is a tentative statement, and the hypothetical presence of resiliency to depression in Native American groups clearly requires further investigation and elucidation; however the current findings do offer a unique view into potentially important etiological group differences. It appears that belonging to Native American cultural group and being highly acculturated to Native culture may actually constitute a significant strength and provides these individuals with significant resiliency with regard

to depression. This will be elaborated upon more as additional complexities arose regarding other study results.

Specifically, one additional complexity arose with regard to the unexpected results regarding the overall model applicability and appropriateness of the measures of depression used in this study. As reviewed previously, cognitive vulnerability theories of depression take more one than one approach. One emphasizes the cognitive style believed to confer vulnerability to depression while the other approach focuses more upon the cognitive structures believed central to the etiology of depression. In contrast to Beck's theory, which explores the role of cognitive structures in vulnerability to depression, the current study investigated the cognitive styles involved in vulnerability to depression. This study attempted to replicate aspects of previous research, which stemmed from the hopelessness theory of depression developed by Abramson, Metalsky, and Alloy (1989). These studies explored the maladaptive cognitive style involved in depression, and the underlying theory was built upon the reformulated theory of learned helplessness and depression set forth by Abramson, Seligman, & Teasdale (1978), which focused on depressed individuals' attributions about the causes of events and their beliefs about whether aversive events could be avoided. In this theory, attributional style is seen as the key cause for depression. It is specifically proposed that individuals who made global, stable, internal attributions for negative events, and specific, unstable, and external attributions for positive events are more likely to develop depression.

The hopelessness theory of depression put forward by Abramson, Metalsky, and Alloy (1989) built upon this initial theory. This revised theory states that a subtype of depression, primarily characterized by hopelessness, exists and that this is a proximal

sufficient cause of hopelessness depression. Hopelessness depression has been hypothesized to be a subtype of depression, characterized by its own causes, symptom profile, course, appropriate methods of treatment, and means of prevention (Abramson, Metalsky, & Alloy, 1989). The two core elements of hopelessness are (1) the presence of negative and stable expectations that highly desired outcomes will not occur or that highly aversive outcomes will occur, and (2) the presence of helplessness. Helplessness is the belief that expected non-contingent negative outcomes will occur no matter how the individual responds (Ingram, Miranda, & Segal, 1998).

The end result of these negative expectancies and beliefs is believed to be the appearance of a generalized sense of hopelessness (Abramson, Metalsky, & Alloy). The maladaptive cognitive style that is believed to appear within individuals experiencing this sense of hopelessness is referred to as a depressogenic attributional style. This cognitive style involves characteristically inferring that the causes of negative life events are internal, stable (persistent over time), and global (widespread) by nature. Individuals making these attributions are also believed to catastrophize and exaggerate the consequences of the negative life events. The net effect of this process is that they begin to feel personally flawed, worthless, and ultimately hopeless about their lives in the future. (Alloy, Abramson, & Francis, 1999). It is believed that individuals with this type of negative thinking style are more vulnerable to developing hopelessness depression when faced with stressful events. Symptoms of hopelessness depression are believed to include: retarded initiation of voluntary responses, sad affect, suicidality, lack of energy, apathy, psychomotor retardation, sleep disturbance, concentration difficulties, and mood-exacerbated negative cognitions (See also Metalsky & Joiner, 1997). This form of

depression is measured with the Hopelessness Depression Symptom Questionnaire (HDSQ), which was also used as a dependent variable in this study.

It was expected that the Hopelessness theory of Depression would be supported in both of the samples in this study. It was also expected that this support would manifest in better model fit when the HDSQ rather than the BDI-II was used for as the criterion variable. This result did not occur. In fact, in both the Native American and non-Native American samples' regression models showed better statistical fit and higher levels predicted variance when the BDI-II was used as a criterion variable. The construct measured by the BDI-II is congruent with Beck's cognitive theory of depression, a theory which has put forth perhaps the most influential model addressing dysfunctional cognitive structures or schemas (Beck, 1987; Ingram, Miranda, & Segal, 1998). It was also expected that the significant group differences observed would extend into differential empirical support for models emphasizing these two forms of depression. This was found to be the case, as differential results were found. However, this difference did not appear in the expected manner, in that it appears that more support was provided for the importance of the more traditional form of depression and depression measurement in both samples. However, regarding hopelessness, as measured by the Beck Hopelessness Scale, differential group outcomes also emerged. Specifically, hopelessness was significantly correlated with stress and cognitive vulnerability in all of its subscale forms in the Native sample but this was not found to be the case in the non-Native Sample. In the non-Native sample the BHS was only significantly related to stress.

Taken in their entirety, the regression and correlation results also clearly indicate that significant and important group etiological differences exist between Native and Non-Native American cultural groups with regard to the development of these depressive symptoms. Specifically, the hypothesized diathesis stress model devised and tested here was based upon previous research from the Cognitive Vulnerability to Depression (CVD) Project (Alloy and colleagues, 1999) which showed that negative cognitive styles do indeed constitute risk for both first onsets and recurrences of clinically significant depression. The CVD study found this type of negatively biased cognitive processing to be not only characteristic of currently depressed individuals, but also prospectively present in cognitively vulnerable non-depressed individuals who later developed depression.

As stated the current study replicated aspects of the CVD studies, as it was hypothesized that stress and cognitive vulnerability would significantly predict depression scores, and that the cognitive vulnerability would act as a third variable moderating or mediating the relationship between stress and depression scores. It was also believed that the Native American group would show a better correspondence to and higher fit indices for this etiological model. However, this hypothesis was only partially supported, and the additionally hypothesized mediational role of cognitive vulnerability was not supported in any sample.

Important group differences emerged during the analysis of the hypothesized etiological models. The hypothesized moderation model was highly successful in explaining the etiology of depression symptoms in the Non-Native American sample. Specifically, exposure to stressors and cognitive vulnerability were highly predictive of

depression scores by themselves, and, indeed, it was shown that cognitive vulnerability moderated the relationship between exposure to stressors and depression scores. Thus, it does appear that hypothetical cognitive vulnerability has a sensitizing effect upon the ability of exposure to stressors to trigger symptoms of depression in a Non-Indian population. This predictive model was quite strong, with 58 % of the total variance accounted for by the model. This was quite impressive, considering the small size of the Non-Native American sample and suggests a robustness of this particular theory in explaining depression etiology for this population.

However, when the focus shifts to the Native American sample, the etiological picture appears much less clear, and the current explanatory model appears to be considerably less effective. Specifically, while both exposure to negative life events and hypothetical cognitive vulnerability did predict a significant amount of the variability in depression scores for Native participants, the amount of variance explained was far less dramatic than the Non-Native American sample. In fact, exposure to stressors accounted for about 7% of the variance in depression scores, and adding in hypothetical cognitive vulnerability accounted for a total of approximately 19% of the variance in depression scores in the Native sample. In contrast, in the Non-Native American sample, exposure to stressors and then stressors and cognitive vulnerability accounted for 44% and 57% respectively of the variance in depression scores. Additionally, in contrast to the results in the largely Caucasian non-Native American sample, cognitive vulnerability did not moderate the relationship between exposure to stressors and depression scores and as mentioned the Native Americans also reported significantly lower levels of certain forms of hypothetical cognitive vulnerability. While both exposure to stressors and hypothetical

cognitive vulnerability were significantly predictive of depression scores for Native Americans, these factors appeared to have their influence independently (as main effects), and cognitive vulnerability does not appear to have a sensitizing impact in the hypothesized manner for this population.

A review of the current findings provides strong support for the notion that Native Americans have significantly different depression etiologies than Caucasians. In addition, despite having significantly more exposure to environmental risk factors, such as lower incomes, negative life events, and lower educational attainment, Native Americans did not differ with regard to mean levels of depression symptoms. The present findings regarding risk factors such as income and education replicate other findings in the past (U.S. Bureau of Census, 1984b; U.S. Senate Select Committee on Indian Affairs, 1985, Brod & McQuiston, 1983, U. S Congress, 1990, U. S Congress, 1986); however the findings for level of symptoms found in previous research do not replicate previous studies (Manson, Shore, & Bloom, 1985, Neligh, 1988, LaFromboise, & Howard-Pitney, 1995). These higher levels of risk and demographic factors would be expected to have increased their levels of depression, yet this hypothesized difference was not found. In fact, as the Native sample even reported significantly lower levels of specific cognitive vulnerability in spite of this heightened exposure to environmental risks. As well, while exposure to environmental stressors was significantly correlated with depression scores the actual average levels of depression are comparatively low diagnostically (BDI-II *mean* = 9.28, HDSQ *mean* = 14.71) and as noted not significantly different from their non-Indian peers. The current findings do not directly elucidate why this difference exists. However, it appears highly likely that resiliency factors, which may help to serve

as a protective factor for the Native American individuals studied, may be present within this population. These important potential resiliency factors are likely helping to strengthen many Native Americans ability to maintain psychological homeostasis or health in the face of exposure to more frequent significantly stress inducing experiences. Future research is very much needed to begin to identify and elucidate these putative protective factors that help foster resiliency.

Given the exposure to significantly more environmental risk factors, the current Native American participants were expected to show differential and significantly more depression symptoms and hypothetical cognitive vulnerability. The fact that this outcome was not observed is highly unique. Potential resiliency factors emerge as likely buffering agents for this population. Some potential resiliency factors may be differential views of the self such as the presence of more relational identities within the Native American sample. The reliance upon relationships and community frequently seen within Native American individuals likely impacts the way in which they perceive themselves and others, specifically their individual identity formation is likely highly impacted by the relational reality in which they are emerged. This more relational view of the self may act as a buffer when such individuals are faced with individually experienced negative life events. In addition, the community, family, and extended family of Native individuals likely provide more support to individuals in times of distress and this may likewise help serve as a protective factor. This suggests that further research into the role of this form of social support would be an important area to consider for this population.

Another important potential source of resiliency lies in the fact that throughout a history of considerable upheaval, colonization, trauma, and oppression, Native

Americans have demonstrated considerable strength and resiliency. The very fact that many Native American groups have remained in existence is evidence of the demonstrated transcendent nature of these particular cultural groups. The successful examination and identification of the factors that help establish this form of dynamic resiliency are important and could lead to potentially vital innovations for Native American mental health care. Potentially important constructs may be spirituality, humor, extended family and community support, differential concepts of health and illness, as well as more individualized psychological factors, such as differences in personality traits and coping styles.

However, it should be noted that additional complexities were also unearthed during the course of this study regarding questions of cultural appropriateness of some widely used psychological assessment measures within this population. Despite the fact that adequate internal consistency was found with regard to the psychological assessment measures used in the current study, questions about the cultural appropriateness arose during and after the collection process. Specifically, many of the Indian participants expressed concerns about the measures' directness, content, and overall tone. It appeared that many of the Native American participants found the measures of depression and cognition (attribution styles) to be somewhat offensive and confrontational in nature. For example, the BDI-II, HPNLES, and HDSQ questions regarding changes in sexual activities, sexual interest, and questions about suicide appeared to be regarded as invasive and discomforting. In general participants seemed somewhat offended by the nature of some of the other questions they were being asked, and they were also openly somewhat distrustful of the practice of research in general. This is likely reflective of experiences

with questionable research conducted by Non-Indian researchers, a sentiment that was expressed by a number of Indian participants during the debriefing and informed consent portions of the data collection process. Many of the Native Americans who participated in the study expressed this distrust openly and discussed past negative experiences and current negative expectations of research in general in an open and articulate manner.

An additional complicating factor is the actual nature of the measures used in this study. The measures of depression and cognitive style used in this and other similar studies were developed with primarily Caucasian samples and by primarily Caucasian investigators. Thus, the approach of the measures was often reflective of a highly individualistic world-view and value system, and some of the items showed a distinct bias towards values of the Western majority culture. This was manifested in the comments of some of the participants who questioned the relevance of some items. This issue was particularly clear when some of the Indian participants completed the EASQ instrument. A number of its questions ask participants to answer the questions “as if” the participant had acted in an unhelpful manner towards friends or family members. A number of participants wrote that they would never refuse to help friends or family, and this may be directly reflective of a more communal ideological view of themselves and of others. A number of other items reflected similar biases towards Western individualized culture, and those items, more often than not, resulted in either verbalized or written comments about their inapplicability or offensiveness. These factors likely impacted the way in which the members of the Native American sample responded to the instruments, and, therefore this will have an impact upon the observed results. Thus, these complexities mandate that future research with Native American participants should

carefully consider the cultural appropriateness of the measures used in research and be ever mindful of related ethical considerations and the need to establish mutual trust with regard to psychological research in general.

The results of the present research project will be presented to both of the tribal institutions from which participants hailed. It is hoped that continuing to maintain this relationship between institutions will begin to alleviate participants' fears about the intent of this research and preserve and maintain the relationships formed between the researcher, participants, and respective institutions. Hopefully, through this process, future research can continue, and Native American mental health can begin to be addressed in a more adequate manner. The applied importance of this proposition is inherent and cannot be understated. Native Americans and their future health will be the beneficiaries of future research endeavors if they are conducted in an ethical, appropriate, and correct manner.

The current study has further elucidated the underlying etiology of depression among some tribes in Northwestern Montana. This research should be expanded to other tribal groups to determine whether or not important tribal differences with regard to depression symptom development exist. The current findings, which partially support the model of hypothetical cognitive vulnerability to depression in this population, could yield significant applied impacts on the selection and development of optimal treatment and preventative approaches for depression among Native Americans.

This is important considering the current critical need for more effective and appropriate treatment and prevention for Native Americans experiencing or at risk for depression. The current findings reveal some support for cognitive approaches to

psychotherapy, treatment plan formulation, and preventative plans. However, a strong argument for other potential intervention and applied refinements also has emerged. Given previous research in the area of depression etiology and risk factors for depression, the Native Americans who participated in the current study should have reported significantly elevated and differential depression symptoms. This was not found to be the case in this study. As noted, a very strong argument for the potential presence of protective resiliency factors in Native Americans has emerged. Therefore, it seems vitally important that clinicians engaged in intervention and assessment implementation with Indian people remain mindful of these potential resiliency factors. One potential treatment modification could be to use therapeutic intervention strategies aimed at adapting or modifying potentially maladaptive cognitive styles; however it is clear that such a strategy must occur in a culturally contextualized manner. For example, the current study found that the Native American participants actually reported significantly lower levels of certain depressogenic attributional styles, specifically they reported less tendencies to catastrophize and forecast future failures due to current negative events experienced. Therefore, a carefully constructed functional analysis, taking into account the individual Native American client's level of acculturation to Native culture, family, and community, is a crucial component of the therapeutic process. Rather than using the individualistic focus upon cognitions and maladaptive thought processes, it may indeed be more important to focus upon the relational reality facing the individual expressing potential depressive pathology.

It does appear that the negative attribution style believed to confer vulnerability to depression may need to be altered to treat depression adequately and to prevent relapse

once symptoms have occurred; however, again given the mixed nature of the current study's results, questions of culturally informed clinical practices become very applicable. In fact, the actual diagnostic applicability of currently used criteria becomes somewhat questionable with regard to Native American individuals. What are the appropriate definitions of normality and abnormality, and what are the community's explanatory models for depression and mental health problems in general? Questions of cultural appropriateness and relevance of Westernized models of mental health begin to emerge with renewed urgency and clarity. In addition, development and implementation of preventative plans will be an important proactive step to take in addressing Native American mental health care. However, such development and implementation must build upon the strengths and resiliency inherent within the Native American cultures and communities. This case formulation and program planning process must begin by first identifying the factors that serve as protective factors for Native Americans against depression. Once developed in this manner, such a preventative program could be implemented in tribal schools to foster resiliency and healthy coping skills. One possible component of this resiliency development could be cognitive in its focus, with strategies aimed at challenging cognitive styles that could serve as vulnerability factors for the development of depression; however, this process must be culturally informed with input from the Native Community in which it is implemented. The strengths and protective factors that appear to have had a dramatic effect in the current study are likely inherent within Native Communities and individuals. Treatment and preventative programs must build upon and identify these strengths in order to hope to be effective agents of change.

The current study demonstrated that hypothetical cognitive vulnerability and stressors have a significant impact upon levels of depression for Native Americans and non-Native Americans. However, cognitive vulnerability did not appear to have a sensitizing effect between the occurrence of stressors and the development of depression for the Native American participants. It may be that interventions could aim at stress reduction and cognitive style modification in a separate manner. However, it does appear that addressing each of the areas in some way is important to insure the eventual success of clinical applications with Native American clientele. It is important to continue further consideration and study into the actions aimed at refining and even reinventing existing treatment modalities and developing prevention strategies. This investigation and development process should begin by first identifying potential strengths and resiliency factors present within Native American cultures and individuals. The resiliency or “reziliency” factors would establish a strong foundation upon which a more effective and adequate understanding and practice of Native American mental health care could be established. These actions would lead to important and positive changes in Native American mental health care and to the overall wellness of Native America. This outcome would be a valuable outcome for both Native Americans and for the American community as a whole.

References

- Abramson, L. Y., Alloy, L. B., & Metalsky, G. I. (1988). The cognitive diathesis-stress theories of depression: Toward an adequate evaluation of the theories' validities. In L. B. Alloy, *Cognitive processes in depression*, New York: Guilford Press.
- Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory based subtype of depression. *Psychological Review*, *94*, 358-372.
- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology*, *87*, 49-74.
- Alloy, L. B., Abramson, L. Y., & Francis, E.L. (1999). Do negative cognitive styles confer vulnerability to depression? *Current Directions in Psychological Science*, *4*, 128-132.
- Alloy, L. B., Abramson, L. Y., Whitehorse, W. G., Hogan, M. E., Tashman, N. A., Steinberg, D. L., Rose, D. T., & Donovan, P. (1999). Depressogenic cognitive styles: Predictive validity, information processing and personality characteristics, and developmental origins. *Behaviour Research and Therapy*, *37*, 503-531.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *5*, (6) 1173-1182.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Beck, A.T. (1987). Cognitive model of depression. *Journal of Cognitive Psychotherapy*, *1*, 2-27.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive Theory of Depression*. New York: Guilford Press.

- Beck, A. T., & Steer, R. A. (1987). *Manual for the revised Beck Depression Inventory*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., & Steer, R. A. (1987). Psychometric properties of the Beck Depression Inventory: Twenty five years of evaluation. *Clinical Psychology Review, 8*, 77-100.
- Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.
- Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: the hopelessness scale. *Journal of Consulting Psychology, 42*, 861-865.
- Blum, R. W., Harmon, B., Harris, L., Bergiesen, L., & Resnick, M. (1992). An inventory of American Indian adolescent health. *The Journal of the American Medical Association, 267*(12), 1637-1645.
- Brave Heart, M. Y. H., & DeBruyn, L. M. (1998). The American Indian Holocaust: Healing unresolved historical grief. *American Indian and Alaska Native Mental Health Research, 8*, (2), 56-78.
- Brown, G. W., & Harris, T. (1978). Life events and depression. In *Social origins of depression*. 100-129, Tavistock Publications.
- Chiariello, M. A., & Orvaschel, H. (1995). Patterns of parent-child communication: relationship to depression. *Clinical Psychology Review, 15*, 395-407.
- Clark, D. A., Beck, A. T., & Alford, B. A. (1999). *Scientific foundations of cognitive theory and therapy of depression*. New York, New York, Wiley & Sons.

- Dohrenwend, B. P., & ShROUT, P. E. (1985). "Hassles" in the conceptualization and measurement of life stress variables.
- Downey, G., & Coyne, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin*, 108, 1, 50-76.
- Durham, T. W. (1982) Norms, reliability, and item analysis of the Hopelessness Scale in general psychiatric, forensic psychiatric, and college populations. *Journal of Clinical Psychology*, 38, 597-600.
- Gotlib, I. H., & Hammen, C. L. (1992). *Psychological Aspects of Depression: Toward a cognitive interpersonal integration*. West Sussex, England: Wiley.
- Hammen, C., Marks, T., Mayol, A., & DeMayo, R. (1985). Depressive self-schemas, life stress, and vulnerability to depression. *Journal of Abnormal Psychology*, 94, 308-319.
- Hammen, C., & Zupan, B. A. (1984). Self-schemas, depression and the processing of personal information in children. *Journal of Experimental Child Psychology*, 37, 3, 598-608.
- Hafen, B. Q., & Frandsen, K. J. (1986). *Youth suicide: Depression and loneliness*. Evergreen, CO: Cordillera Press.
- Haines, B. A., Metalsky, G. I., Cardamone, A. L., & Joiner, T. (1999). Interpersonal and cognitive pathways into attributional style: A developmental perspective. In T. Joiner & J. C. Coyne (Eds.) *The interactional nature of depression: Advances in interpersonal approaches*. Washington, D. C.: American Psychological Association.
- Holmes, T., & Rahe, J. (1967). *Journal of Psychosomatic Research*, 11, 213.

- Ingram, R. E., Miranda, J., & Segal, Z. V. (1998). *Cognitive vulnerability to depression*. New York: Guilford Press.
- Jaenicke, C., Hammen, C., Zupan., B., Hiroto, D., Gordon, D., Adrian, C., & Burge, D. (1987) Cognitive vulnerability in children at risk for depression. *Journal of Abnormal Child Psychology*, 15, 559-572.
- Kanner, A. D., Coyne, J. C., Shaefer, C., & Lazarus, R. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine*, 4, 1-39.
- Klocek, J. W., Oliver, J. M., & Ross, M. J. (1997). The role of dysfunctional attitudes, negative life events, and social support in the prediction of depressive dysphoria: A prospective longitudinal study. *Social Behavior and Personality*, 25, 123-136.
- LaFromboise, T. (1988). American Indian mental health policy. *American Psychologist*, 43, 388-497.
- LaFromboise, T., & Howard-Pitney, B. (1995). Suicidal behavior in American Indian female adolescents. In S. S. Canetto & D. Lester (Eds.) *Women and suicidal behavior*. New York, NY: Springer Publishing, 157-173.
- Luthar, S. S., & Zigler, E. (1991) Vulnerability and competence: A review of research on resilience in childhood. *American Journal of Orthopsychiatry*, 61, 6-22.
- Mail, P. D. (1989). American Indians, stress, and alcohol. *American Indian Alaska Native Mental Health Research*, 3, 7-26.
- May, P. A. (1987). Suicide and self destruction among American Indian youths. *American Indian and Alaska Native Mental Health Research*, 1, 1, 52-69.

- McGrath, E., Keita, G.P., Strickland, B.R., & Russo, N.F. (Eds). (1990). *Women and Depression: Risk factors and treatment issues*. Washington, DC: American Psychological Association.
- Metalsky, G.I., & Joiner, T.E. (1997). The hopelessness depression symptom question. *Cognitive Therapy and Research, 21*, (3) 359-384.
- Monroe, S. M. & Peterman, A. M. (1988). Life stress and psychopathology. In L. Cohen, (ed.) *Research on stressful life events: Theoretical and methodological issues*. Newbury Park, CA: Sage.
- Monroe, S. M., & Simons, A. D. (1991) Diathesis-Stress Theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin, 110*, (3) 406-425.
- Neligh, G. (1988). Secondary and tertiary prevention applied to suicide among American Indians. *American Indian and Alaska Native Mental Health Research, 1*, (2) 4-18.
- Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: Evidence and theory. *Psychological Bulletin, 101*, 259-282.
- O'Neil, T. D. (1996). *Disciplined Hearts: History, identity, and depression in an American Indian community*. University of California Press, Berkeley and Los Angeles, CA.
- Oetting, E. R., & Beauvias, F. (1990-1991). Orthogonal cultural identification theory: The cultural identification of minority adolescents. *International Journal of the Addictions, 25*, 655-685.
- Rabkin, J., & Struening, E. L (1976). Life events, stress, and illness. *Science, 194*, 4269, 1013-1020.

- Regier, D. A., Narrow, W. E., Rae, D. S. (1990). The epidemiology of anxiety disorders: The Epidemiology Catchment Area (ECA) experience. *Journal of Psychiatric Research*, 24, 2, 3-14.
- Saxe, L.L., & Abramson, L. Y. (1987). *The Negative Life Events Questionnaire: Reliability and Validity*. Unpublished Manuscript.
- Seligman, M. E. P. (1984). Attributional style and depressive symptoms among children. *Journal of Abnormal Psychology*, 93, 2, 235-238.
- Sheeber, L., Hops, H., Alpert, A., Davis, B., & Andrews, J. (1997). Family support and conflict: Prospective relations to adolescent depression. *Journal of Abnormal Child Psychology*, 25, 4, 333-344.
- Shore, J. H., Manson, S. M., & Bloom, J. D. (1987). A pilot study of depression among American Indian patients with research criteria depression. *American Indian and Alaska Native Mental Health Research Journal*, 1, 2, 4-15.
- U.S. Congress, Office of Technology Assessment. (1986). *Indian health care*. Washington, DC: Government Printing Office.
- U.S. Congress, Office of Technology Assessment. (1990). *Indian adolescent mental health Care*. Washington, DC: Government Printing Office.
- Van Winkle, N., & May, P. A. (1994). Indian adolescent suicide: The epidemiological picture in New Mexico. *American Indian and Alaska Native Mental Health Research Journal*, 4, 5-34.
- Weissman, M. M., Gammon, G. D., John, K., Merikangas, K. R., Warner, V., Prusoff, B. A., & Sholomskas, D. (1987). Children of Depressed Parents: Increased

psychopathology and early onset of major depression. *Archives of General Psychiatry*, 44, 847-853.

Zitzow, D. (1984). The College Adjustment Rating Scale. *Journal of College Student Personnel*, 25, 103-126.

Table 1.

Total Sample Correlations ($n = 136$)

	BDI-II	HDSQ	BHS	Caus.	Future	Globaliz.	Catastrop	Internal.	Import.	Cogn. Vuln.	Native Accult.	Caucas. Accult.	Neg. Stress.	All Stress.	Month Income	Year Income
BDI-II	1															
HDSQ	.823**	1														
BHS	.676**	.656**	1													
Causation	.169*	.149	.036	1												
Future	.244**	.226**	.259**	.397**	1											
Globalization	.370**	.365**	.268**	.350**	.615**	1										
Catastrophize	.296**	.287**	.244**	.334**	.637**	.763**	1									
Internalization	.422**	.355**	.301**	.327**	.552**	.673**	.780**	1								
Importance	.207*	.171*	.046	.604**	.400**	.512**	.419**	.438**	1							
Cogn. Vulnerability	.370**	.336**	.248**	.643**	.767**	.840**	.844**	.819*	.732**	1						
Native Acculturation	.020	-.011	.083	-.069	-.177*	.068	-.008	.091	-.040	-.025	1					
Caucasian Accultur.	.146	.149	.006	.154	.207*	.167	.022	.009	.280**	.180*	-.369**	1				
Negative Stressors	.330**	.338**	.150	-.074	.038	.130	.013	.132	.070	.073	.096	-.064	1			
All Stressors	.176*	.155	.014	-.096	-.037	.082	-.002	.114	.061	.032	.168	-.189*	.891**	1		
Monthly income	-.089	-.024	-.167	-.135	.026	-.067	-.053	-.087	-.129	-.097	-.023	.145	-.098	-.112	1	
Yearly income	-.180*	-.116	-.197*	-.161	-.038	-.096	-.048	-.087	-.122	-.119	-.080	.156	-.142	-.124	.855**	1
Years of Education	.093	-.016	-.016	.268**	.236**	.139	.204*	.148	.217	.258**	-.208*	.199*	-.088	-.064	.102	.096

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 2.

Native American Sample Correlations (N = 92)

	BDI-II	BFS	HDSQ	Cognitive Vuln.	Cause	Future	Global	Catastrophe	Internal	Importance	Native Accult.	Caucas. Accult.	Negative Events	All Events	Month Income	Year income	Years of Educ.
BDI-II	1																
BFS	.681**	1															
HDSQ	.834**	.706**	1														
Cognitive Vuln.	.334**	.292**	.313**	1													
Causation	.155	.058	.146	.653**	1												
Future	.211*	.301**	.199	.744**	.343**	1											
Globalization	.321**	.309**	.359**	.811**	.328**	.565**	1										
Catastrophe	.263*	.298**	.275**	.828**	.332**	.640**	.741**	1									
Internalization	.357**	.348**	.291**	.814**	.320**	.563**	.605**	.796**	1								
Importance	.229*	.069	.187	.772**	.643**	.406**	.549**	.392**	.481**	1							
Native Acculturation	-.052	.020	-.074	.065	.005	-.079	.127	.057	.094	.080	1						
Caucasian Acculturation	.218*	.024	.192	.189	.180	.159	.216*	-.052	.027	.308**	-.031	1					
Negative Stressors	.267*	.105	.278*	.071	-.099	.067	.116	.013	.094	.107	-.066	.036	1				
All Stressors	.112	-.029	.075	.042	-.145	.029	.075	.014	.111	.078	.017	-.083	.900**	1			
Monthly Income	-.089	-.184	-.073	-.187	-.151	-.086	-.172	-.168	-.174	-.115	.020	.050	-.094	-.086	1		
Yearly Income	-.229*	-.222*	-.204	-.192	-.175	-.085	-.177	-.132	-.137	-.175	.097	-.002	-.153	-.119	.852**	1	
Years of Education	.066	-.053	-.077	.212*	.252*	.271**	.069	.111	.099	.180	-.166	.179	-.065	-.035	.127	.109	1

** Correlation is significant at the 0.01 level 2-tailed.

* Correlation is significant at the 0.05 level 2-tailed.

Table 3.

Non-Native Sample Correlations (N = 43)

	BDI-II	BHS	HDSQ	Cognitive Vuln.	Cause	Future	Global	Catastrophe	Internal.	Importance	Native Accult.	Caucas. Accult.	Negative Events	All Events	Month Income	Year income	Years of Educ.
BDI-II	1																
BHS	.661**	1															
HDSQ	.797**	.527**	1														
Cognitive Vuln.	.463**	.158	.381*	1													
Causation	.207	-.035	.145	.620**	1												
Future	.334*	.202	.280	.802**	.531**	1											
Globalization	.482**	.181	.378*	.906**	.411**	.719**	1										
Catastrophe	.374*	.154	.306*	.875**	.330*	.602**	.821**	1									
Internalization	.562**	.206	.508**	.858**	.363*	.564**	.810**	.802**	1								
Importance	.143	-.029	.095	.623**	.443**	.357*	.421**	.467**	.366*	1							
Native Acculturation	.173	.235	.214	.065	-.161	-.060	.129	.238	.155	-.085	1						
Caucasian Acculturation	.100	.087	.068	-.040	.025	.005	-.007	-.207	-.073	.119	-.142	1					
Negative Stressors	.666**	.359*	.705**	.203	.073	.130	.260	.145	.293	.010	.151	.136	1				
All Stressors	.436**	.150	.526**	.132	.134	-.035	.172	.105	.122	.143	.041	.079	.806**	1			
Monthly Income	-.094	-.169	.022	-.057	-.175	.073	.019	-.008	-.006	-.236	.203	.146	-.046	-.072	1		
Yearly Income	-.151	-.202	-.053	-.120	-.226	-.090	-.051	-.050	-.047	-.149	.044	.202	-.071	-.021	.850**	1	
Years of Education	.173	.091	.121	.313*	.290	.072	.276	.317*	.265	.274	-.030	-.179	-.016	.052	.020	.013	1

** Correlation is significant at the 0.01 level 2-tailed.

* Correlation is significant at the 0.05 level 2-tailed.

Total Sample-Moderation Models

Table 4a. Multiple Regression Analysis of predictors of Beck Depression Inventory-II scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1</u> Stressors	.109	.109	>.001	.330	.330
<u>Step 2</u> Stressors Cogn. Vuln.	.247	.138	>.001	.303 .373	.328 .394
<u>Step 3</u> Stressors Cogn. Vuln. The Interaction	.249	.002	.566	.310 .365 .047	.332 .382 .052

Note. Criterion Variable: BDI-II score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire; The Interaction = Stressors X Cognitive Vulnerability interaction.

Table 4b. Multiple Regression Analysis of predictors of Hopelessness Depression Symptom Questionnaire scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1</u> Stressors	.115	.115	>.001	.338	.338
<u>Step 2</u> Stressors Cogn. Vuln.	.213	.098	>.001	.316 .314	.334 .333
<u>Step 3</u> Stressors Cogn. Vuln. The Interaction	.213	>.001	.790	.319 .310 .022	.334 .335 .024

Note. Criterion Variable: HDSQ score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire; The Interaction = Stressors X Cognitive Vulnerability interaction.

Native American Sample-Moderation Models

Table 5a. Multiple Regression Analysis of predictors of Beck Depression Inventory-II scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1</u> Stressors	.071	.071	.014	.267	.267
<u>Step 2</u> Stressors Cogn. Vuln.	.189	.118	.001	.243 .344	.260 .356
<u>Step 3</u> Stressors Cogn. Vuln. The Interaction	.189	>.000	.972	.242 .345 .004	.257 .358 -.004

Note. Criterion Variable: BDI-II score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire; The Interaction = Stressors X Cognitive Vulnerability interaction.

Table 5b. Multiple Regression Analysis of predictors of Hopelessness Depression Symptom Questionnaire scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1</u> Stressors	.077	.077	.010	.278	.278
<u>Step 2</u> Stressors Cogn. Vuln.	.165	.088	.005	.257 .297	.270 .309
<u>Step 3</u> Stressors Cogn. Vuln. The Interaction	.165	.000	.990	.257 .297 .001	.268 .300 .001

Note. Criterion Variable: HDSQ score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire; The Interaction = Stressors X Cognitive Vulnerability interaction.

Non-Native American Sample-Moderation Models

Table 6a. Multiple Regression Analysis of predictors of Beck Depression Inventory-II scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1</u> Stressors	.443	.443	>.001	.666	.666
<u>Step 2</u> Stressors Cogn. Vuln.	.569	.126	.002	.592 .363	.662 .476
<u>Step 3</u> Stressors Cogn. Vuln. The Interaction	.613	.043	.049	.610 .353 .209	.691 .485 .317

Note. Criterion Variable: BDI-II score. Negative Life Experiences = HPNLES Stressors score; Cognitive Vulnerability = Extended Attributional Style Questionnaire; The Interaction = Stressors X Cognitive Vulnerability interaction.

Table 6b. Multiple Regression Analysis of predictors of Hopelessness Depression Symptom Questionnaire scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1</u> Stressors	.497	.497	>.001	.338	.705
<u>Step 2</u> Stressors Cogn. Vuln.	.561	.064	.024	.316 .314	.694 .357
<u>Step 3</u> Stressors Cogn. Vuln. The Interaction	.561	.000	.979	.653 .257 .003	.693 .357 -.004

Note. Criterion Variable: HDSQ score. Negative Life Experiences = HPNLES Stressors score; Cognitive Vulnerability = Extended Attributional Style Questionnaire; The Interaction = Stressors X Cognitive Vulnerability interaction.

Total Sample-Mediation Models

Table 7a. Multiple Regression Analysis of predictors of Beck Depression Inventory-II scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1*</u> Stressors	.005	.005	.654	.073	.073
<u>Step 2*</u> Stressors	.109	.109	>.001	.330	.330
<u>Step 3*</u> Stressors Cogn. Vuln.	.247	.138	>.001	.303 .373	.328 .394

Note. *Step 1 Criterion Variable: Cognitive Vulnerability (EASQ Scores); Step 2 & 3 Criterion Variable: BDI-II score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire.

Table 7b. Multiple Regression Analysis of predictors of Hopelessness Depression Symptom Questionnaire scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1*</u> Stressors	.005	.005	.654	.073	.073
<u>Step 2*</u> Stressors	.115	.115	>.001	.338	.338
<u>Step 2*</u> Stressors Cogn. Vuln.	.213	.098	>.001	.316 .314	.334 .333

Note. *Step 1 Criterion Variable: Cognitive Vulnerability (EASQ Scores); Step 2 & 3 Criterion Variable: HDSQ score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire.

Native American Sample-Mediation Models

Table 8a. Multiple Regression Analysis of predictors of Beck Depression Inventory-II scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1*</u> Stressors	.005	.005	.411	.071	.071
<u>Step 2*</u> Stressors	.071	.071	.014	.267	.267
<u>Step 3*</u> Stressors Cogn. Vuln.	.189	.118	.001	.243 .344	.260 .356

Note. *Step 1 Criterion Variable: Cognitive Vulnerability (EASQ Scores);
Step 2 & 3 Criterion Variable: BDI-II score. Stressors = HPNLES
 Negative Life Events score; Cognitive Vulnerability = Extended
 Attributional Style Questionnaire.

Table 8b. Multiple Regression Analysis of predictors of Hopelessness Depression Symptom Questionnaire scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1*</u> Stressors	.005	.005	.411	.071	.071
<u>Step 2*</u> Stressors	.077	.077	.010	.278	.278
<u>Step 3*</u> Stressors Cogn. Vuln.	.165	.088	.005	.257 .297	.270 .309

Note. *Step 1 Criterion Variable: Cognitive Vulnerability (EASQ Scores);
Step 2 & 3 Criterion Variable: HDSQ score. Stressors = HPNLES
 Negative Life Events score; Cognitive Vulnerability = Extended
 Attributional Style Questionnaire.

Non-Native American Sample-Mediation Models

Table 9a. Multiple Regression Analysis of predictors of Beck Depression Inventory-II scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1*</u> Stressors	.041	.041	.204	.203	.203
<u>Step 2*</u> Stressors	.443	.443	>.001	.666	.666
<u>Step 3*</u> Stressors Cogn. Vuln.	.569	.126	.002	.592 .363	.662 .476

Note. *Step 1 Criterion Variable: Cognitive Vulnerability (EASQ Scores); Step 2 & 3 Criterion Variable: BDI-II score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire.

Table 9b. Multiple Regression Analysis of predictors of Hopelessness Depression Symptom Questionnaire scores based on levels of Negative Life Experiences and Hypothetical Cognitive Vulnerability

	R ²	Δ R ²	p	β	Partials
<u>Step 1*</u> Stressors	.041	.041	.204	.203	.203
<u>Step 2*</u> Stressors	.497	.497	>.001	.338	.705
<u>Step 3*</u> Stressors Cogn. Vuln.	.561	.064	.024	.316 .314	.695 .357

Note. *Step 1 Criterion Variable: Cognitive Vulnerability (EASQ Scores); Step 2 & 3 Criterion Variable: HDSQ score. Stressors = HPNLES Negative Life Events score; Cognitive Vulnerability = Extended Attributional Style Questionnaire.

Figure 1.

Universe of Risk

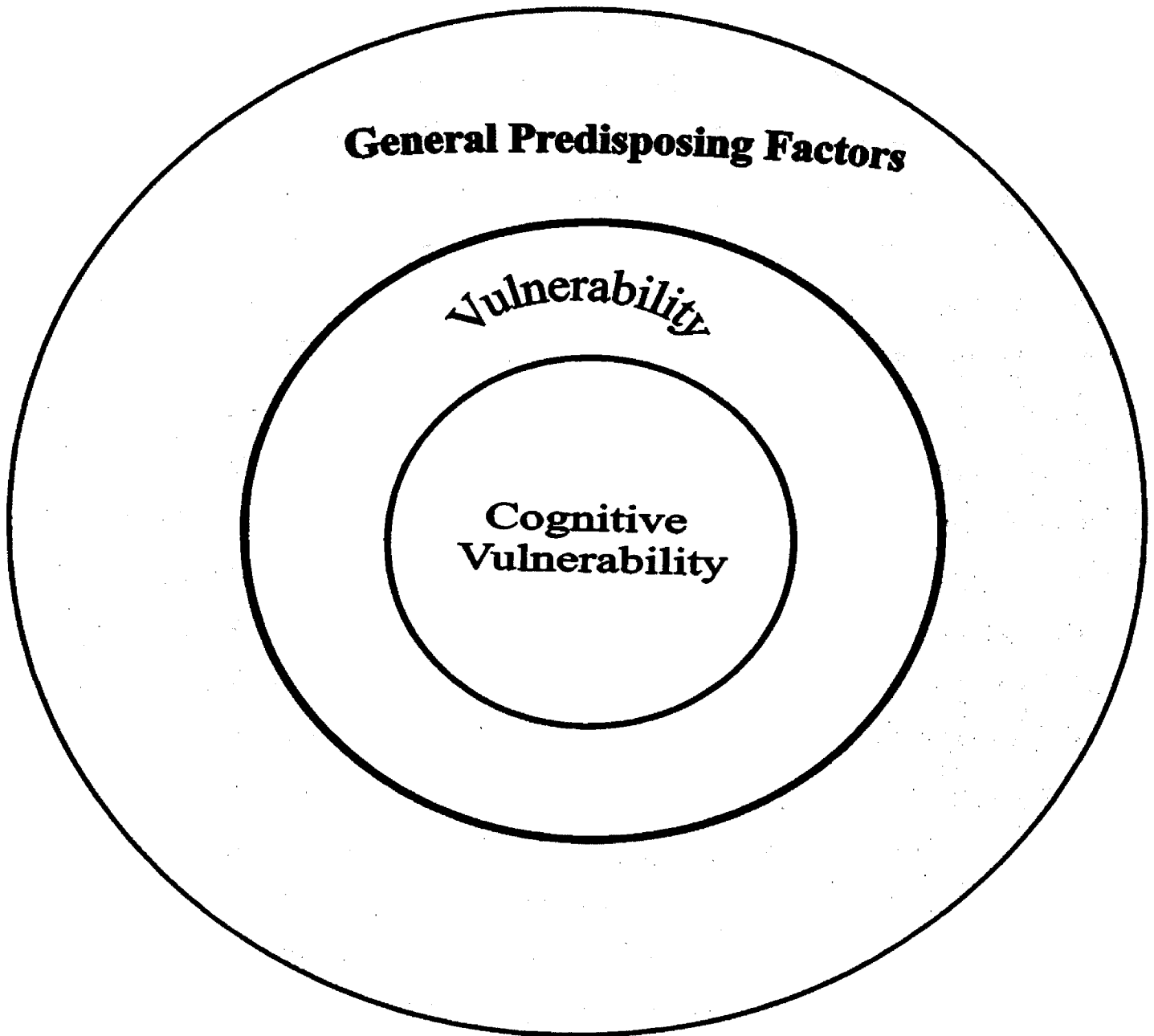


Figure 2.

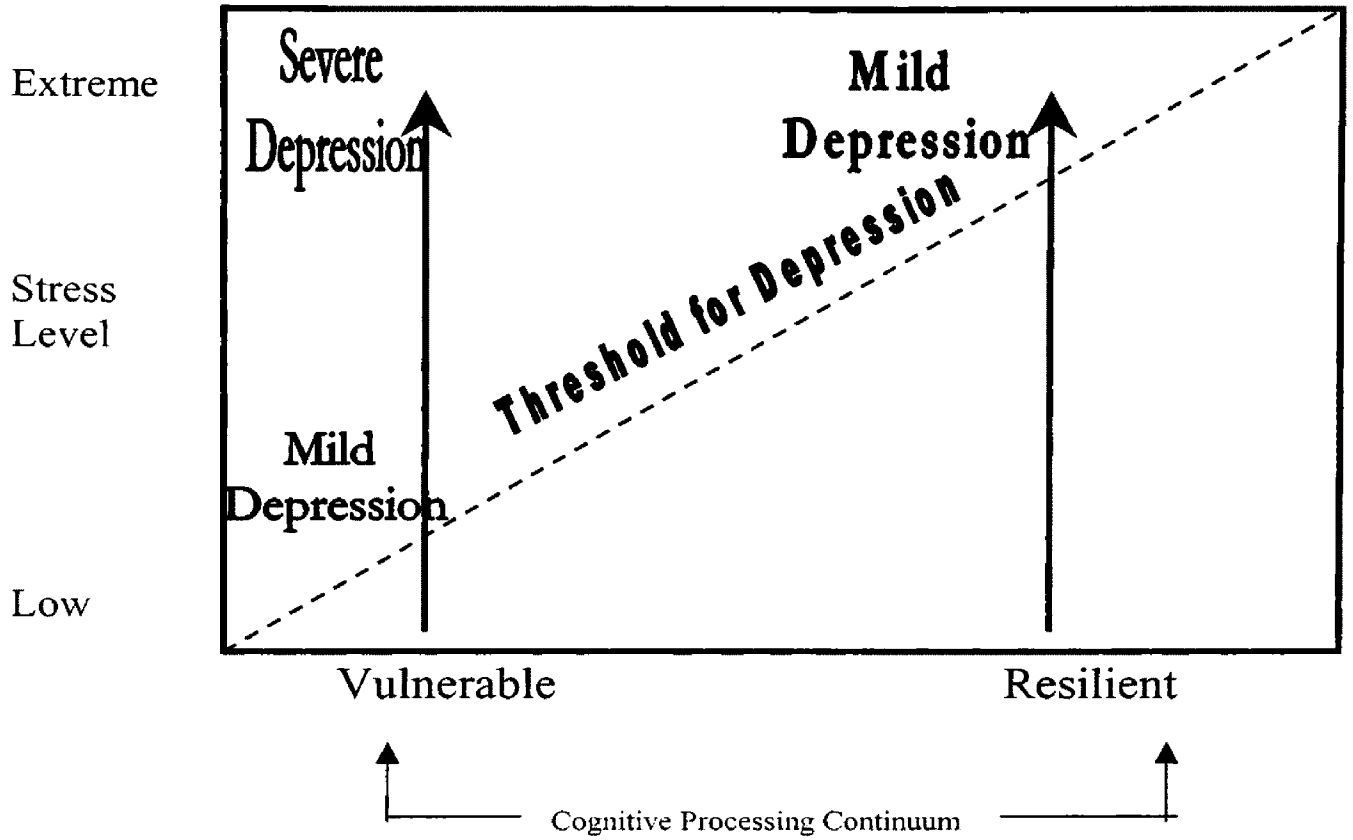
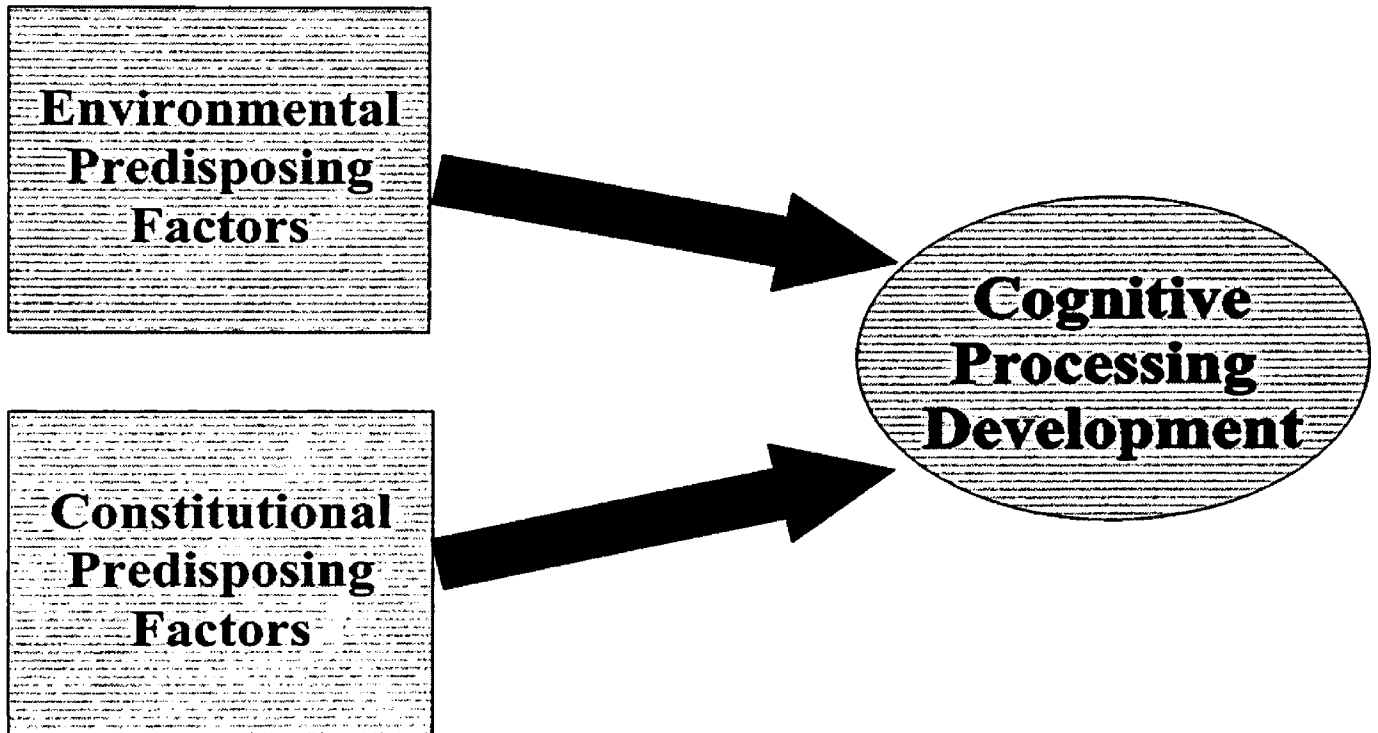


Figure 1 shows the impact vulnerability has upon susceptibility to depression. (Adapted from Ingram, Miranda, & Segal, 1998)

Figure 3.

Distal Cognitive Development



Diathesis-Stress Model

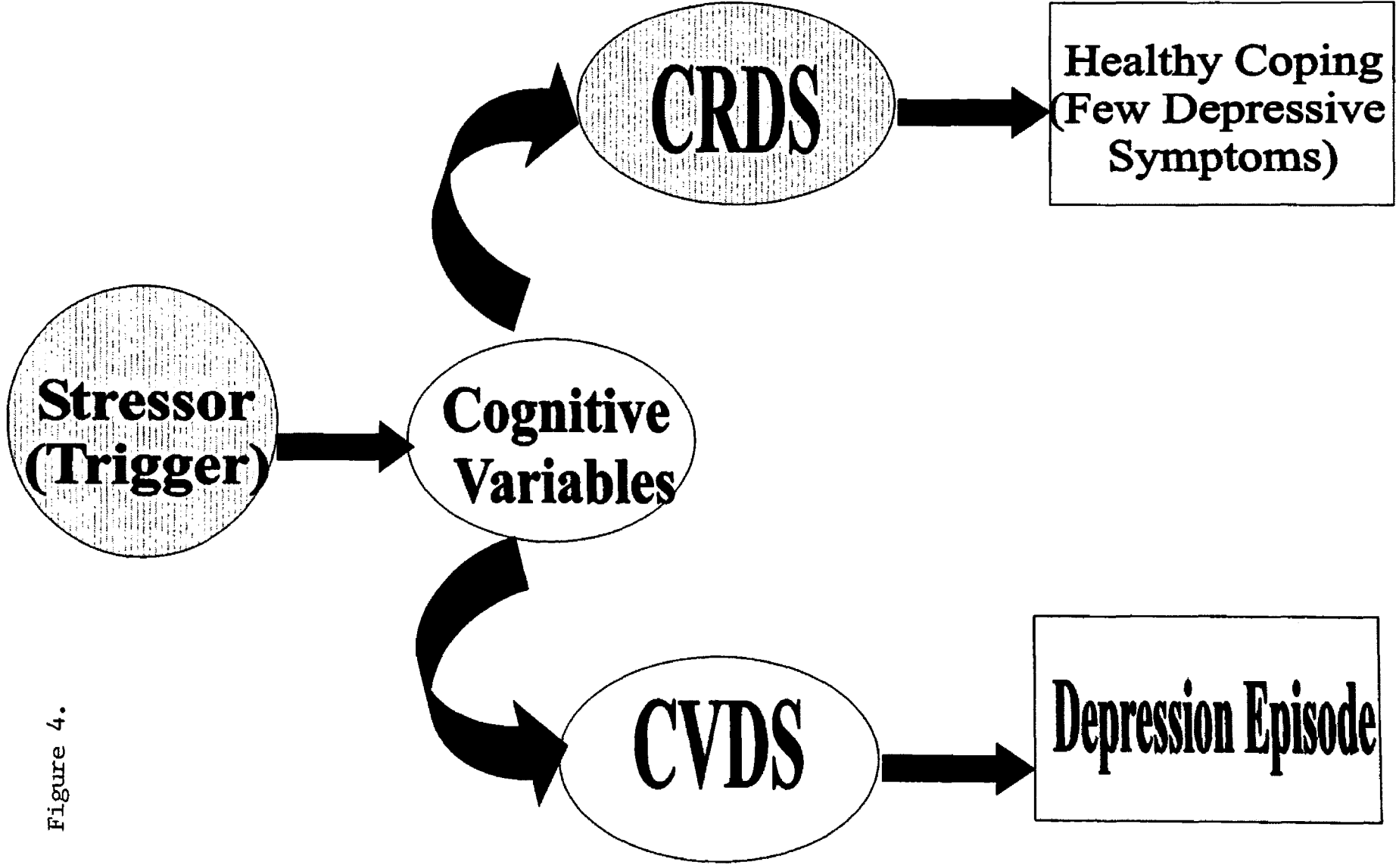


Figure 4.

Figure 5.

Moderator Model

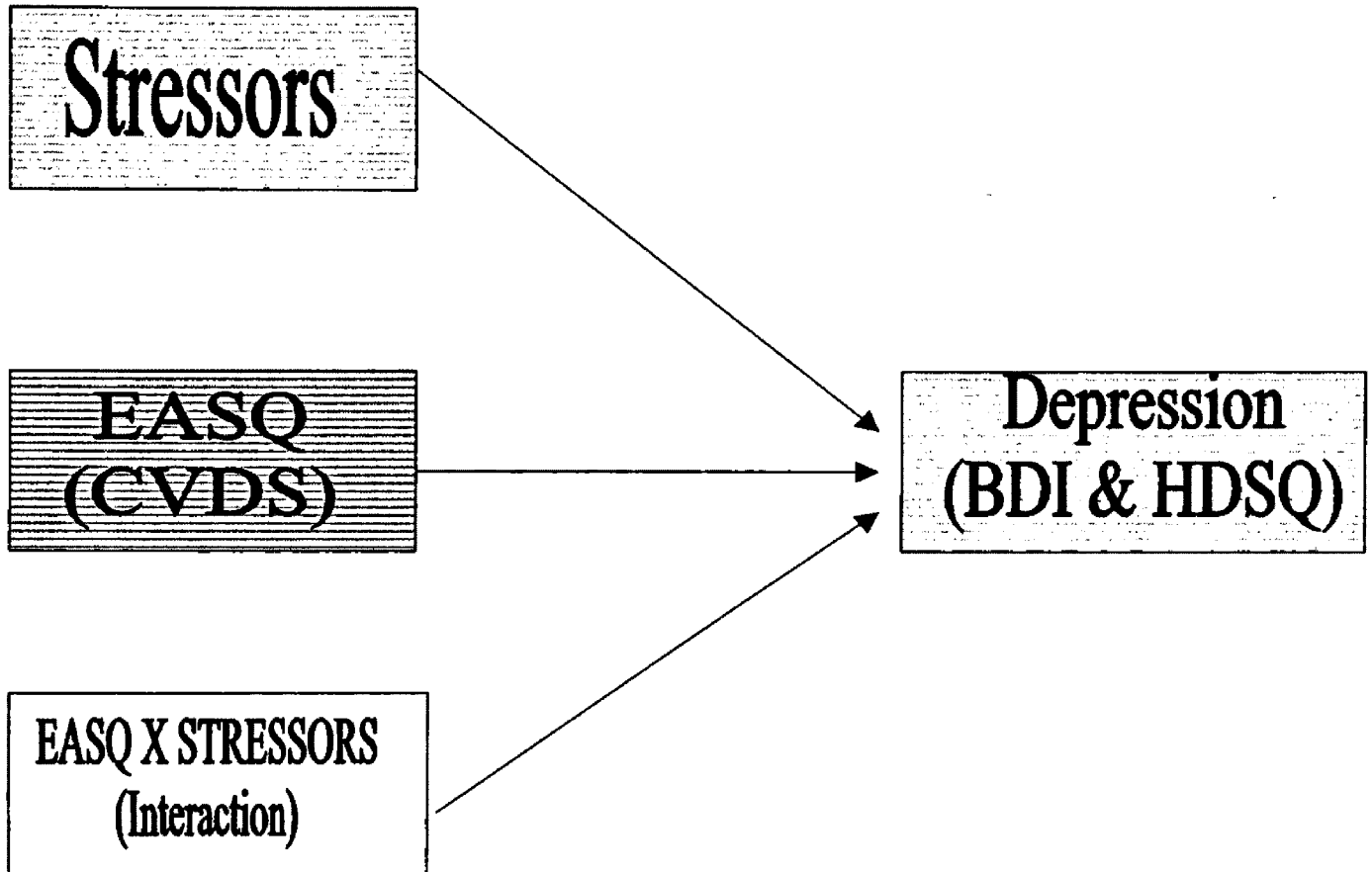


Figure 6.

