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## Mental Health in Mali:

# An Analysis of the Expression of Major Depressive Disorder across Different Cultures

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## Introduction: Mental Health in the Developing World

In the last several decades we have witnessed an explosion of awareness towards health issues in the developing world. The health issues range from child malnutrition to multi-drug resistant tuberculosis, from the AIDS epidemic to female reproductive health, and from a rise in non-communicable diseases such as cardiovascular disease to malaria. However, despite all of this increased attention given to health in the developing world, the issue of mental health has been virtually ignored.

Many people wrongly believe that mental health is a luxury of wealthy nations. This mistaken belief could not be further from the truth. The World Health Organization writes in their Mental Health Gap Action Programme (mhGAP), “Mental, neurological, and substance abuse disorders are highly prevalent and burdensome worldwide. The violations of human rights directed toward people with these disorders compound the problem. The resources that have been provided to tackle the huge burden are insufficient, inequitably distributed, and inefficiently used, which results in a large majority of the population with these disorders receiving no care at all” (WHO 2008). The mhGAP was especially developed to address the inequalities in mental health treatment between low, middle, and high income countries.

Mental, neurological, and substance abuse disorders are highly taxing health issues in today’s world. They account for 14% of the global burden of disease measured in daily life adjusted years (DALY’s) and 30% of the global burden of non-communicable diseases (WHO 2009). One might expect the greatest portion of burden due to a mental, neurological or substance abuse disorder to be found in a wealthy nation; however, 75% of those affected by a mental, neurological, or substance abuse disorder live in low-income countries, and thus are less likely to have access to adequate treatment (WHO 2009). Depression is ranked the 7<sup>th</sup> most important cause of disease burden in low and middle income countries, as it tends to be

disabling, reoccurring, and often remains untreated (WHO 2009). One of the most traumatic possible effects of depression is suicide. Approximately 800,000 people commit suicide every year, and 86% of these victims live in low and middle-income countries (WHO 2009). Shortages of services include a lack of available medically trained professionals, such as psychiatrists, psychiatric nurses, psychologists, and social workers. Low-income countries have 0.05 psychiatrists and 0.16 psychiatric nurses per 100,000 people, compared to a rate 200 times more in high-income countries (WHO 2009). It is unmistakable that the developing world possesses a significant portion of the burden caused by mental, neurological, and substance abuse disorders, yet this burden is consistently overlooked by both global health professionals and the general public.

After careful consideration, the high prevalence of mental, neurological, and substance abuse disorders in developing countries should not be surprising. There is a clear, direct relationship between poverty and poor mental health. Poverty and poor mental health interact in a vicious, negative cycle; poor mental health causes poverty and poverty causes poor mental health. For example, an individual born with a neurological disease is more likely to face challenges when attempting to find employment and earn a living. If the person is unable to financially support themselves he or she will become impoverished. Living a life of poverty may cause this individual to become depressed at his or her lack of monetary success. This depression can lead to a substance abuse disorder and increased poverty. The interaction between poor mental health and poverty is highly prevalent and highly dangerous. Poor mental health interferes with a child's ability to learn, an adult's ability to work, and individual's ability to maintain health, supportive relationships with family and friends. Mental, neurological, and substance abuse disorders also tend to be persistent; meaning the cost of treatment may last for weeks, months, or even years.

Apart from the relationship between poverty and poor mental health, the high prevalence of mental, neurological, and substance abuse disorders should not be unexpected because there is a direct relationship between poor physical health and poor mental health. Low-income countries generally lack an adequate public health infrastructure. This lack of infrastructure leads to increased problems with physical health at all levels of health. Infants are less likely to receive all the necessary vaccinations, children are more likely to suffer from malnutrition and vitamin deficiencies, and hospitals are less likely to have advanced technology and services in low-income countries. As the AIDS epidemic continues to grow at a startling rate, fascinating research is being performed on the mental health status of HIV victims and if having a positive mental health status improves likelihood of living with AIDS.

Mental health has been irresponsibly ignored from the public health agenda until only recently. And even today, this burdensome health concern does not receive the attention it truly deserves. The past organization of mental health services, centralized in big cities and large institutions, uses limited resources inefficiently, isolates patients from family and community support networks, and is often associated with human rights violations. Public health leadership must work to integrate mental health services into the primary health care system, particularly where resources are so scarce and the burden of mental, neurological, and substance abuse disorders are so great.

## Introduction: The Intersection of Psychiatry and Anthropology

My initial Independent Study Project (ISP) proposal, attached to my application for The School for International Training's "Gender, Health, and Development" Program in Mali, was centred on AIDS and violence against women in Mali. I argued that in spite of Mali's historically low AIDS prevalence the structural gender-based violence against women, clearly evident today in Mali, made the population vulnerable to a rapid increase in HIV prevalence. This topic suited me well, it was focused around two of my primary academic interests (AIDS and women), and it represents a pressing global health issue.

Upon my arrival in Mali, I was quickly placed with a generous and patient home-stay family who has been my greatest resource during my semester here. Immediately I began to spend as much time as possible with my Malian family and their friends. After a few days I was struck by a strange realization about my Malian acquaintances, I could never really tell if my family and friends were happy or not. Though I did observe a significant amount of joking and laughter, there was an overwhelming consensus that "life is too difficult." I was vaguely thought that everyone seemed reminiscent for simple, happier times, but from my perspective, life could not be any simpler or more relaxed than in Mali. I became torn, either people in Mali were the happiest people on Earth or they were all terribly depressed.

My Tanti, my second mother, was one of my greatest inspirations to change my ISP topic to mental health. After developing a trustworthy relationship with her and hearing about her past life before my arrival in Bamako, I began to wonder if she might be depressed. After doing some preliminary research on depression I learned that individuals in non-Western countries often report depression through psychosomatic symptoms, such as headaches, body-aches, or fatigue, more often than symptoms that are traditionally associated with depression,

such as sadness, hopelessness, or guilt. My Tanti complains of headaches or fatigue on a daily basis.

I was intrigued. What other differences exist between illnesses across different cultures? Are the differences only found in the manifestation of symptoms or are there also biological differences? How does one conceptualize mental health issues, such as depression, here in Mali? Is there a stigma against mental health patients in Mali? What facilities, treatments, and medicines are available in Mali to treat mental disorder? After a little more background research I found that the topic of mental health in the developing world has been largely ignored until very recently.

As cross-cultural studies in every academic discipline become increasingly more prevalent, anthropology contributes a unique and valuable perspective to providing cross-cultural validity. Furthermore, the world is shrinking rapidly. As globalization accelerates, previously distinct, isolated cultures blend into a melange of new integrated cultures. Anthropology provides an academic context for the observation of different societies and the analysis of similarities and differences between different cultures.

At this point it may be helpful to step back for a moment and define the word “culture.” Although the idea may seem simple, in reality there are an infinite number of definitions and many of them are highly elusive. Culture is defined by Edward Burnett Tylor in 1874 as the “complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society” (Tylor 1874). This is the definition of culture that should be understood for the remainder of this paper. It is also essential at this point to note that culture is not a static phenomenon, but instead culture is constantly evolving. One of the most prominent techniques in anthropological fieldwork is the “return to the field.” The culture of a given society is likely to change over the course of



several years thus it can be very valuable for a researcher to return to the same site multiple times to examine the differences and similarities within the culture over a long period of time.

There is a long tradition of cross-over between the fields of medicine and anthropology. A background of medical knowledge can be useful for anthropologists because many anthropologists study health and medicinal practices within a given society. Indeed, the state of illness is a human universal. However, there is infinite diversity when examining the ways different societies react to a state of illness. A familiarity with anthropology can also be helpful to practicing psychiatrists. Psychiatrists are more likely to notice cultural subtleties in patients if they have a background in anthropology. Within the field of medical anthropology the distinction between disease and illness is very important. Disease is defined as a “malfunctioning or maladaptation of biological or psychological processes” and illness is defined as “the personal, interpersonal, and cultural reaction to disease” (Kleinman 1977). Although there is a distinction between these two concepts, disease and illness behaviour both interact within a given afflicted individual—neither disease nor illness can exist without the other. Thus, knowledge of both the biology of disease and how a given individual’s behaviour will reflect illness is necessary in medical anthropological research.

When considering mental health issues, the discipline of anthropology becomes even more essential. Mental health issues are often described as the “uncharted territory” of medicine today. This is in part due to the undeniable fact that many of the causes of mental illness (biological, psychological, and environmental) are affected by the culture in which an individual lives. Furthermore, the description by a patient of mental illness is influenced by what is culturally acceptable and what is culturally taboo. It is essential for psychiatrists practicing within multi-cultural populations to have a basic understanding of how culture will affect the illness behaviour of their patients.

## Introduction: Universality versus Cultural Relativism

Within the field of psychiatry there exists a great debate over the “universalities,” or cross-cultural similarities within mental disorder. A significant portion of cross-cultural psychiatric research has been initiated from a wish to demonstrate that psychiatric disorder is like any other physical disorder; in particular, it occurs in all societies and can be detected using standardized diagnostic techniques. Other psychiatric research suggests that there are significant differences between the ways mental disorder manifests itself within different cultural settings.

The Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV), is a manual published by the American Psychiatric Association (APA) that includes all currently recognized mental health disorders. The DSM-IV was written as an attempt to systematically categorize human emotional troubles and behaviour. The manual lists diagnostic criteria for mental disorders with the hope of helping clinicians formulate diagnoses and choose between different treatment options. Although the rich diversity of human behaviour cannot be completely portrayed in a single diagnostic manual, it is the aim of the DSM-IV is to describe that which is common to a number of patients, across different ages of life, sexes, and cultures, and therefore the DSM-IV can be viewed as a proponent of universalities or cross-cultural similarities within mental disorder.

According to the DSM-IV major depressive disorder is defined as a mood disorder, and characterized by a depressed mood that persists for at least two weeks. The DSM-IV states that an episode of major depression must present at least five of the listed symptom criteria including either (1) a depressed mood or (2) a loss of interest or pleasure. Other potential symptoms include changes in appetite, changes in sleeping pattern, increased agitation or psychomotor slowdown, fatigue, feelings of worthlessness, inability to

concentrate, and suicidal thoughts. The other exclusionary criteria for major depression include (1) the symptoms are not attributable to the direct physiological effects of a substance or a general medical ailment, (2) the symptoms are not explained by a case of bereavement, and (3) the symptoms do not fulfil the criteria for another mood disorder, such as bipolar disorder. It is clear that the DSM-IV lists specific, definitive criteria to diagnose a case of major depression, and the manual leaves little room for the interpretation of different cross-cultural manifestations of mental disorder.

The World Health Organization's International Pilot Study of Schizophrenia (1973) is another study that supports the notion of cross-cultural universalities among mental disorder. The International Pilot Study of Schizophrenia (IPSS) hypothesized that core symptoms of schizophrenia would cluster together in a similar way across Western and non-Western, industrialized and non-industrialized societies. The IPSS was a non-epidemiological, clinic-based comparison that applied a template of symptoms to psychotic patients in a range of societies to identify groups of patients who seemed similar (World Health Organization, 1979). After the IPSS was completed, the Determinants of Outcome Study was performed comparing more than 1300 cases of psychotic disorder in twelve centers of ten countries. The authors note "patients with the diagnosis of schizophrenia in the different populations and cultures share many features at the level of symptomology" (Sartorius et al, 1986). The authors conclude that "the existence of broad similarities or manifestations of schizophrenia across centers was established" (Sartorius et al, 1986).

Arthur Kleinman, a leading source on the intersection of psychiatry and anthropology, performed the majority of his fieldwork in China analyzing the way depression is manifested within non-Western contexts. In his article "Culture and Depression" Kleinman writes, "In many parts of the Chinese society, the experience of depression is physical rather than psychological. Many depressed Chinese people do not report feeling sad, but rather express

boredom, discomfort, feelings of inner pressure, and symptoms of pain, dizziness, and fatigue” (Kleinman 2004). He takes this argument so far to say that culture may create distinctive environments for gene expression and physiological reaction, resulting in a local biology for depression. He cites research that demonstrates that people from various ethnic backgrounds metabolize antidepressant drugs in different ways as evidence.

A study of depressive disorder performed in the Dogon Plateau suggests a possible counterposition of the two ways of expression depression, commonly considered autonomous. The authors describe these two ways of expression depression as “conventional depression,” the symptoms including sadness and loss of interest, and “paranoid psychosomatic depression,” the symptoms including headaches, fatigue, and paranoia. The results support the hypothesis of an independence of psychosomatic from depressive symptoms. The screening instrument used in this study was the Questionnaire pour le Depistage en Santé Mentale, a structured interview of 23 items based on the Self-Reporting Questionnaire. The sample was selected from the general population of a Bandiagara village (Carta et al. 1999).

In the debate of universalism versus cultural relativity in mental disorder, although there is evidence for broad similarities among certain disorders (such as schizophrenia), most academics currently agree that there are many differences in the manifestation of major depressive disorder across different cultures. Furthermore, culture influences the way individuals experience their symptoms, the idioms used to report their symptoms, their decisions about treatment options, their relationships with medical professionals, and the likelihood of outcomes such as suicide.

## Introduction: Hypotheses

Null Hypothesis: There is no statistically significant difference in the expression of major depressive disorder across a Western population, an urban Malian population, and a rural Malian population based on the screening instrument Beck Depression Inventory.

Hypothesis: Based on the widespread finding that somatic symptoms in depression and anxiety disorders play a more central role in the experience and expression of disorder in non-Western societies, I hypothesize that the data collected from the Beck Depression Inventory will show a difference in the expression of depression across a Western population, an urban Malian population, and a rural Malian population. Specifically, I hypothesize that the Western population will emphasize feelings of sadness, guilt, and worthlessness, while the rural Malian population will emphasize changes in sleeping pattern and appetite, fatigue, and feelings of punishment. The urban Malian population will act as a median between these two extremes.

I am basing this hypothesis on observations made while living with families in both urban Bamako and rural Sanankoroba. When I arrived in Mali, I was initially very surprised at the amount of access to Western culture available in Bamako. My family watches Western television every day and has access to information from the radio and the internet in cyber cafés. In comparison, the majority of homes in Sanankoroba do not have electricity, and thus televisions, radios, or computers are not readily available. During my observation periods in Sanankoroba I was struck by how disconnected I felt from the rest of the world. I felt a world away from Bamako, let alone the Western world. This isolation certainly created a culture distinct from the culture of Bamako. Based on these two vastly different cultures, there will be differences in the manifestation of major depressive disorder.

## Methods

The instrument used in this study was the Beck Depression Inventory-II (BDI-II), a short series of twenty-one items used to measure the intensity, severity, and depth of major depressive disorder. Aaron T. Beck, a pioneer in cognitive therapy, is credited with first designing the BDI in 1961. The second version of the inventory, the BDI-II, was developed to reflect revisions in the Fourth Edition Text Revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The BDI was originally developed to detect, assess, and monitor changes in depressive symptoms among people in a mental health care setting. However, it can also be used to detect depressive symptoms in a primary care setting. The exam usually takes between five and ten minutes and is often self-administered. The BDI-II is composed to 21 items, each with four possible responses. Items 1 through 13 assess symptoms that are psychological in nature, while items 14 through 21 assess more physical symptoms.

The individual taking the exam is asked to select which statement of the four possible responses best describes their psychiatric mindset over the preceding two weeks. Each response is assigned a score ranging from zero to three, indicating the severity of the symptom. When the test is administered on the general population, a score of 21 or over represents depression. When the test is administered on a clinically diagnosed population, scores from 0 to 9 represent minimal depressive symptoms, scores 10 to 16 represent mild depression, scores 17 to 29 represent moderate depression, and scores 30 to 63 represent severe depression. The BDI-II can also distinguish between different subtypes of depressive disorders.

The BDI-II has been extensively tested for content validity, concurrent validity, and construct validity. Content validity is the extent to which the items of a test are representative

of that which is to be measured. Because the BDI-II was constructed from a consensus among clinicians about depressive symptoms, the document is said to have content validity. Concurrent validity is a measure of the extent to which a test concurs with already existing standards. Several studies have shown concurrent validity between the BDI-II and the Hamilton Depression Scale and the Minnesota Multiphasic Personality Inventory-D. Construct validity, the extent to which a test measures an internal construct or variable, was shown to be related to medical symptoms, anxiety, stress, loneliness, sleep patterns, alcoholism, suicidal behaviors, and adjustment among youth. Past statistical analysis of the BDI-II shows that the test consistently correlates with sex, race, and age. However, a few studies have shown higher BDI scores to be inversely related to education level.

The BDI-II was translated from English into French and Bambara with the help of the linguistic department at University of Bamako FLASH. The study was conducted on a sample of 60 people randomly selected from the general populations. The three populations were inhabitants of either the United States, Bamako (an urban population), or Sanankoroba (a rural population). For the purpose of this study, the term “urban” should be defined as “core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile” and the term “rural” should be defined as a region which is not either an urban area or an urban cluster (US Census Bureau 2008). Therefore the capital city of Bamako, with a population of 1,690,471 citizens, served as the site for the urban population, and Sanankoroba, with a population of approximately 7,000 residents, served as the site for the rural population.

## Results: Data Collection

	Sadness	Pessimism	Past Failure	Loss of Pleasure	Guilty Feelings	Punishment	Self-Dislike	Self-Critical	Suicidal Thoughts	Crying	Agitation
B1	1	0	2	0	0	0	2	2	0	0	3
B2	1	0	2	0	1	3	0	2	0	3	3
B3	0	0	0	0	1	1	0	0	0	0	0
B4	0	0	0	0	1	0	0	2	0	0	0
B5	1	0	0	2	0	1	0	1	0	3	3
B6	1	2	0	2	0	1	0	1	0	0	1
B7	0	0	2	0	1	0	0	0	0	0	3
B8	1	2	0	3	0	3	0	2	0	3	2
B9	0	3	0	1	0	0	0	0	0	0	0
B10	0	0	0	1	1	1	0	2	0	2	2
B11	1	2	2	3	3	0	0	3	1	3	3
B12	0	0	0	1	0	1	0	2	0	3	3
B13	0	0	0	0	0	0	0	2	1	3	2
B14	0	0	0	0	0	1	0	2	1	0	1
B15	0	0	0	0	0	0	0	2	1	3	2
B16	0	0	0	0	0	0	0	2	1	3	2
B17	2	1	0	1	0	0	2	0	0	2	2
B18	2	0	0	0	1	0	0	0	0	0	0
B19	0	0	0	0	1	1	0	2	0	0	0
B20	2	3	3	1	1	1	3	2	1	2	2
W1	0	1	0	0	0	0	0	0	0	0	0
W2	0	0	1	1	1	0	0	1	1	1	1
W3	3	2	3	3	1	2	1	1	0	3	1
W4	0	1	0	0	1	1	0	1	0	0	0
W5	3	1	2	1	3	0	3	1	0	1	2
W6	0	1	0	0	1	1	0	2	1	0	1
W7	0	1	0	0	0	0	0	1	0	0	1
W8	0	1	1	0	0	0	2	2	0	0	0
W9	1	1	0	1	1	0	0	1	0	0	0
W10	2	1	1	0	2	0	2	2	1	0	0
W11	0	1	0	0	0	1	1	1	1	0	0
W12	1	1	1	2	0	1	0	0	0	1	1
W13	1	1	0	0	0	1	3	0	0	1	0
W14	1	0	0	0	1	0	0	0	0	0	0
W15	3	3	1	0	0	2	3	1	1	1	0
W16	0	0	1	0	1	0	3	1	1	0	0
W17	1	2	0	2	1	1	0	0	0	0	0
W18	2	0	1	0	0	0	3	0	0	0	2
W19	0	2	0	0	1	0	1	0	0	2	0
W20	0	0	1	2	0	2	0	0	0	0	3
S1	0	0	2	1	2	3	1	0	0	3	1
S2	0	0	3	2	0	1	0	2	0	3	0
S3	0	0	0	0	3	2	0	2	0	0	3
S4	1	0	1	1	0	2	0	1	0	0	1
S5	0	1	0	0	0	0	1	2	0	0	2
S6	0	1	0	1	0	1	0	0	0	3	1
S7	0	0	1	1	1	0	0	1	1	3	3
S8	1	0	0	0	0	2	0	2	0	1	2
S9	0	1	0	0	0	0	0	1	0	3	1
S10	0	0	1	0	0	1	1	2	0	0	2
S11	0	0	0	0	1	2	0	1	0	0	0
S12	2	0	2	2	1	0	1	2	0	3	1
S13	0	0	0	0	1	0	0	1	0	3	1
S14	0	2	2	1	0	2	1	2	1	3	2
S15	0	1	0	1	0	0	1	1	0	1	1
S16	0	0	0	0	1	2	0	1	0	0	3
S17	1	0	0	0	0	1	0	0	0	0	2
S18	0	0	0	1	0	3	0	0	0	3	1
S19	0	0	1	0	0	0	0	3	0	0	2
S20	0	0	1	1	0	2	0	2	0	3	3



	Loss of Inte	Indecisiven	Worthlessr	Loss of Ene	Changes in Irritability	Changes in Concentrat	Fatigue	Loss of Inte	Total BDI sc	
B1	0	0	0	0	1	1	2	0	0	14
B2	1	0	2	1	1	2	0	3	2	27
B3	1	0	1	0	0	0	0	0	0	4
B4	1	0	0	0	0	0	0	0	3	7
B5	1	0	0	0	0	0	1	0	1	16
B6	0	0	1	1	3	0	1	0	1	15
B7	0	0	0	0	1	0	1	0	1	10
B8	3	3	0	0	1	1	3	0	1	28
B9	2	0	0	1	1	1	1	0	1	11
B10	3	1	0	0	0	1	0	0	1	16
B11	2	3	0	0	1	0	0	3	0	30
B12	1	3	0	1	1	0	0	0	1	17
B13	3	0	0	0	0	0	0	0	0	11
B14	1	0	0	0	0	0	1	1	1	10
B15	3	0	0	0	0	0	0	0	0	11
B16	3	0	0	0	0	0	0	0	0	11
B17	2	3	2	2	1	3	1	2	2	30
B18	0	0	0	0	0	0	0	2	0	5
B19	0	1	0	2	2	0	0	2	2	14
B20	0	3	2	3	2	3	2	2	2	42
W1	0	0	0	0	0	0	0	0	0	1
W2	0	0	0	0	1	0	0	0	1	9
W3	2	2	1	1	3	2	2	3	2	41
W4	0	1	0	1	0	0	1	2	1	10
W5	0	0	3	0	1	3	2	3	0	29
W6	0	1	0	1	1	1	1	1	1	15
W7	0	1	1	1	1	0	1	1	1	10
W8	0	1	1	1	1	0	0	0	0	10
W9	1	0	0	1	1	0	1	2	2	13
W10	0	0	2	1	0	0	0	0	1	15
W11	0	0	2	2	1	0	2	1	2	10
W12	0	1	0	0	0	1	0	0	0	2
W13	1	1	1	1	1	0	2	0	2	9
W14	0	0	0	0	0	0	0	1	0	1
W15	1	2	3	0	2	3	0	3	2	17
W16	1	0	0	0	0	0	0	2	0	3
W17	0	2	2	0	0	0	1	1	0	6
W18	0	0	1	1	3	1	0	1	3	11
W19	0	3	0	0	0	1	1	0	0	6
W20	0	1	1	1	0	0	0	3	0	7
S1	2	2	3	3	3	3	2	1	3	38
S2	3	1	2	2	3	0	3	0	3	30
S3	0	0	0	2	0	3	0	0	2	17
S4	0	1	0	3	2	0	0	2	1	26
S5	2	1	0	2	1	0	0	1	0	13
S6	1	1	0	0	0	0	1	0	0	10
S7	1	0	0	1	0	0	0	1	0	17
S8	3	0	0	2	2	0	0	1	3	22
S9	2	1	0	1	1	0	1	3	2	17
S10	0	0	1	1	1	0	1	1	1	13
S11	1	1	0	2	0	1	0	1	1	7
S12	3	1	0	3	3	0	1	0	3	14
S13	0	0	0	1	1	2	0	0	2	6
S14	2	0	1	3	2	0	1	3	3	15
S15	0	1	1	0	2	0	1	0	0	8
S16	2	1	0	2	2	2	0	1	2	12
S17	1	1	0	1	1	1	1	2	2	10
S18	2	0	0	2	2	0	0	0	2	11
S19	2	2	0	0	2	0	0	0	0	7
S20	1	0	1	3	2	0	2	3	0	14

## Descriptive Data:

	<i>Sadness</i>	<i>Pessimism</i>	<i>Past Failures</i>	<i>Loss of Pleasure</i>	<i>Guilty Feelings</i>
Mean	0.6	Mean	0.65	Mean	0.55
Standard Error	0.168585	Standard Error	0.243602	Standard Error	0.227977
Median	0	Median	0	Median	0
Mode	0	Mode	0	Mode	0
Standard Deviation	0.753937	Standard Deviation	1.089423	Standard Deviation	1.019546
Sample Variance	0.568421	Sample Variance	1.186842	Sample Variance	1.039474
Range	2	Range	3	Range	3
Minimum	0	Minimum	0	Minimum	0
Maximum	2	Maximum	3	Maximum	3
Sum	12	Sum	13	Sum	15

	<i>Sadness</i>	<i>Pessimism</i>	<i>Past Failures</i>	<i>Loss of Pleasure</i>	<i>Guilty Feelings</i>
Mean	0.9	Mean	1	Mean	0.65
Standard Error	0.250263	Standard Error	0.177705	Standard Error	0.181731
Median	0.5	Median	1	Median	0.5
Mode	0	Mode	1	Mode	0
Standard Deviation	1.11921	Standard Deviation	0.794719	Standard Deviation	0.812728
Sample Variance	1.252632	Sample Variance	0.631579	Sample Variance	0.660526
Range	3	Range	3	Range	3
Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	3
Sum	18	Sum	20	Sum	13

	<i>Sadness</i>	<i>Pessimism</i>	<i>Past Failures</i>	<i>Loss of Pleasure</i>	<i>Guilty Feelings</i>
Mean	0.25	Mean	0.3	Mean	0.7
Standard Error	0.12301	Standard Error	0.127733	Standard Error	0.206474
Median	0	Median	0	Median	0
Mode	0	Mode	0	Mode	0
Standard Deviation	0.55012	Standard Deviation	0.571241	Standard Deviation	0.923381
Sample Variance	0.302632	Sample Variance	0.326316	Sample Variance	0.852632
Range	2	Range	2	Range	3
Minimum	0	Minimum	0	Minimum	0
Maximum	2	Maximum	2	Maximum	3
Sum	5	Sum	6	Sum	14

	<i>Punishment Feelings</i>	<i>Self-Dislike</i>	<i>Self-Criticalness</i>	<i>Suicidal Thoughts</i>	<i>Crying</i>
Mean	0.7	Mean	0.35	Mean	1.45
Standard Error	0.206474	Standard Error	0.195677	Standard Error	0.2112
Median	0.5	Median	0	Median	2
Mode	0	Mode	0	Mode	2
Standard Deviation	0.923381	Standard Deviation	0.875094	Standard Deviation	0.944513
Skewness	1.568757	Skewness	2.344373	Skewness	-0.67356
Range	3	Range	3	Range	3
Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	3
Sum	14	Sum	7	Sum	29

	<i>Punishment Feelings</i>	<i>Self-Dislike</i>	<i>Self-Criticalness</i>	<i>Suicidal Thoughts</i>	<i>Crying</i>
Mean	0.6	Mean	1.1	Mean	0.75
Standard Error	0.168585	Standard Error	0.289282	Standard Error	0.160181
Median	0	Median	0.5	Median	1
Mode	0	Mode	0	Mode	1
Standard Deviation	0.753937	Standard Deviation	1.293709	Standard Deviation	0.71635
Sample Variance	0.568421	Sample Variance	1.673684	Sample Variance	0.513158
Range	2	Range	3	Range	2
Minimum	0	Minimum	0	Minimum	0
Maximum	2	Maximum	3	Maximum	2
Sum	12	Sum	22	Sum	15

	<i>Punishment Feelings</i>	<i>Self-Dislike</i>	<i>Self-Criticalness</i>	<i>Suicidal Thoughts</i>	<i>Crying</i>
Mean	1.2	Mean	0.3	Mean	1.3
Standard Error	0.236198	Standard Error	0.105131	Standard Error	0.193309
Median	1	Median	0	Median	1
Mode	2	Mode	0	Mode	2
Standard Deviation	1.056309	Standard Deviation	0.470162	Standard Deviation	0.864505
Sample Variance	1.115789	Sample Variance	0.221053	Sample Variance	0.747368
Range	3	Range	1	Range	3
Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	1	Maximum	3
Sum	24	Sum	6	Sum	26

<i>Agitation</i>	<i>Loss of Interest</i>	<i>Indecisiveness</i>	<i>Worthlessness</i>	<i>Loss of Energy</i>					
Mean	1.7	Mean	1.35	Mean	0.85	Mean	0.4	Mean	0.55
Standard Error	0.262578	Standard Error	0.264326	Standard Error	0.292674	Standard Error	0.168585	Standard Error	0.198348
Median	2	Median	1	Median	0	Median	0	Median	0
Mode	2	Mode	0	Mode	0	Mode	0	Mode	0
Standard Deviation	1.174286	Standard Deviation	1.182103	Standard Deviation	1.308877	Standard Deviation	0.753937	Standard Deviation	0.887041
Skewness	-0.42904	Skewness	0.292604	Skewness	1.087928	Skewness	1.604745	Skewness	1.592357
Range	3	Range	3	Range	3	Range	2	Range	3
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	3	Maximum	2	Maximum	3
Sum	34	Sum	27	Sum	17	Sum	8	Sum	11

<i>Agitation</i>	<i>Loss of Interest</i>	<i>Indecisiveness</i>	<i>Worthlessness</i>	<i>Loss of Energy</i>					
Mean	0.6	Mean	0.3	Mean	0.8	Mean	0.9	Mean	0.6
Standard Error	0.197351	Standard Error	0.127733	Standard Error	0.2	Standard Error	0.228266	Standard Error	0.133771
Median	0	Median	0	Median	1	Median	1	Median	1
Mode	0	Mode	0	Mode	0	Mode	0	Mode	1
Standard Deviation	0.88258	Standard Deviation	0.571241	Standard Deviation	0.894427	Standard Deviation	1.020836	Standard Deviation	0.598243
Sample Variance	0.778947	Sample Variance	0.326316	Sample Variance	0.8	Sample Variance	1.042105	Sample Variance	0.357895
Range	3	Range	2	Range	3	Range	3	Range	2
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	2	Maximum	3	Maximum	3	Maximum	2
Sum	12	Sum	6	Sum	16	Sum	18	Sum	12

<i>Agitation</i>	<i>Loss of Interest</i>	<i>Indecisiveness</i>	<i>Worthlessness</i>	<i>Loss of Energy</i>					
Mean	1.6	Mean	1.4	Mean	0.7	Mean	0.45	Mean	1.7
Standard Error	0.210263	Standard Error	0.233959	Standard Error	0.146898	Standard Error	0.184605	Standard Error	0.23056
Median	1.5	Median	1.5	Median	1	Median	0	Median	2
Mode	1	Mode	2	Mode	1	Mode	0	Mode	2
Standard Deviation	0.940325	Standard Deviation	1.046297	Standard Deviation	0.656947	Standard Deviation	0.825578	Standard Deviation	1.031095
Sample Variance	0.884211	Sample Variance	1.094737	Sample Variance	0.431579	Sample Variance	0.681579	Sample Variance	1.063158
Range	3	Range	3	Range	2	Range	3	Range	3
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	2	Maximum	3	Maximum	3
Sum	32	Sum	28	Sum	14	Sum	9	Sum	34

<i>anges in Sleeping Pattern</i>	<i>Irritability</i>	<i>Changes in Appetite</i>	<i>Concentration Difficulty</i>	<i>Fatigue</i>	<i>Loss of Interest in Sex</i>						
Mean	0.75	Mean	0.6	Mean	0.65	Mean	0.75	Mean	0.95	Mean	0.5
Standard Error	0.190221	Standard Error	0.222427	Standard Error	0.195677	Standard Error	0.25	Standard Error	0.198348	Standard Error	0.170139
Median	1	Median	0	Median	0	Median	0	Median	1	Median	0
Mode	0	Mode	0	Mode	0	Mode	0	Mode	1	Mode	0
Standard Deviation	0.850696	Standard Deviation	0.994723	Standard Deviation	0.875094	Standard Deviation	1.118034	Standard Deviation	0.887041	Standard Deviation	0.760886
Skewness	1.104265	Skewness	1.654119	Skewness	1.320755	Skewness	1.051344	Skewness	0.607031	Skewness	1.19478
Range	3	Range	3	Range	3	Range	3	Range	3	Range	2
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	3	Maximum	3	Maximum	3	Maximum	2
Sum	15	Sum	12	Sum	13	Sum	15	Sum	19	Sum	10

<i>Changes in Sleeping Pattern</i>	<i>Irritability</i>	<i>Changes in Appetite</i>	<i>Concentration Difficulty</i>	<i>Fatigue</i>	<i>Loss of Interest in Sex</i>						
Mean	0.8	Mean	0.6	Mean	0.7	Mean	1.2	Mean	0.9	Mean	0.4
Standard Error	0.212751	Standard Error	0.222427	Standard Error	0.179179	Standard Error	0.257519	Standard Error	0.21643	Standard Error	0.168585
Median	1	Median	0	Median	0.5	Median	1	Median	1	Median	0
Mode	0	Mode	0	Mode	0	Mode	0	Mode	0	Mode	0
Standard Deviation	0.951453	Standard Deviation	0.994723	Standard Deviation	0.801315	Standard Deviation	1.151658	Standard Deviation	0.967906	Standard Deviation	0.753937
Sample Variance	0.905263	Sample Variance	0.989474	Sample Variance	0.642105	Sample Variance	1.326316	Sample Variance	0.936842	Sample Variance	0.568421
Range	3	Range	3	Range	2	Range	3	Range	3	Range	3
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	2	Maximum	3	Maximum	3	Maximum	3
Sum	16	Sum	12	Sum	14	Sum	24	Sum	18	Sum	8

<i>ange in Sleeping Pattern</i>	<i>Irritability</i>	<i>Change in Appetite</i>	<i>Concentration Difficulty</i>	<i>Fatigue</i>	<i>Loss of Interest in Sex</i>						
Mean	1.5	Mean	0.6	Mean	0.7	Mean	1	Mean	1.5	Mean	1
Standard Error	0.223607	Standard Error	0.233959	Standard Error	0.193309	Standard Error	0.240613	Standard Error	0.266557	Standard Error	0.299122
Median	2	Median	0	Median	0.5	Median	1	Median	2	Median	0
Mode	2	Mode	0	Mode	0	Mode	0	Mode	2	Mode	0
Standard Deviation	1	Standard Deviation	1.046297	Standard Deviation	0.864505	Standard Deviation	1.076055	Standard Deviation	1.192079	Standard Deviation	1.337712
Sample Variance	1	Sample Variance	1.094737	Sample Variance	0.747368	Sample Variance	1.157895	Sample Variance	1.421053	Sample Variance	1.789474
Range	3	Range	3	Range	3	Range	3	Range	3	Range	3
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0
Maximum	3	Maximum	3	Maximum	3	Maximum	3	Maximum	3	Maximum	3
Sum	30	Sum	12	Sum	14	Sum	20	Sum	30	Sum	20

# Data Analysis: Correlations

	Sadness	Pessimism	Past Failures	Loss of Pleasure	Guilty Feelings	Punishment	Self-Dislike	Self-Criticalness	Suicidal thought	Crying	Agitation	Loss of Interest	Indecision	Worthlessness	Loss of Energy	Changes in Sleep	Irritability	Changes in Appetite	Concentration	Fatigue	Loss of Interest	
Sadness	1																					
Pessimism	0.397289	1																				
Past Failures	0.377466	0.282994	1																			
Loss of Pleasure	0.342353	0.627855	0.038768	1																		
Guilty Feelings	0.128739	0.117731	0.482473	0.187	1																	
Punishment	0.120962	0.099408	0.074196	0.307483	-0.05256	1																
Self-Dislike	0.62223	0.356086	0.551042	-0.01475	-0.06734	-0.12376	1															
Self-Criticalness	-0.17738	-0.04348	0.225978	0.177629	0.223876	0.223285	-0.00955	1														
Suicidal thought	-0.08909	0.11303	0.190555	-0.0549	0.103221	-0.26671	0.115129	0.509635	1													
Crying	0.097451	0.01686	0.055177	0.378332	-0.0242	0.278489	-0.02099	0.486175	0.390673	1												
Agitation	0.154565	-0.0864	0.507135	0.285745	0.017712	0.155325	0.209991	0.365389	0.171592	0.656956	1											
Loss of Interest	-0.30709	0.018391	-0.39455	0.207433	-0.16715	0.004822	-0.27729	0.275765	0.369324	0.637073	0.155454	1										
Indecision	0.416013	0.477992	0.227493	0.601466	0.246303	0.222094	0.415855	0.270342	0.076974	0.435035	0.311613	0.137768	1									
Worthlessness	0.574074	0.307579	0.391446	3.04E-17	0.055174	0.332647	0.574367	-0.19217	-0.05939	0.097451	0.083227	-0.22441	0.277342	1								
Loss of Energy	0.424973	0.482003	0.29409	0.043647	-0.00391	0.147792	0.620396	-0.05968	-0.03786	-0.02071	-0.0859	-0.34383	0.482785	0.676809	1							
Changes in Sleep	0.328244	0.582102	0.356215	0.348926	0.061123	0.234509	0.335823	0.016376	-0.19739	-0.19433	0.026343	-0.48413	0.342698	0.410305	0.680037	1						
Irritability	0.617578	0.446823	0.45037	0.103793	-0.04182	0.263585	0.773926	-0.07843	-0.06752	0.184654	0.207266	-0.00895	0.47701	0.786008	0.679994	0.310985	1					
Changes in Appetite	0.41482	0.527228	0.292083	0.427684	-0.32878	0.319159	0.512027	-0.05413	-0.11513	-0.06297	0.199748	-0.12974	0.319358	0.143592	0.193238	0.371173	0.435333	1				
Concentration	0.561951	0.183647	0.459587	0.080802	0.604597	0.178434	0.255523	0.150188	0.115002	0.060132	-0.24889	0.368652	0.499512	0.464361	0.262851	0.425924	-0.14793	1				
Fatigue	0.125918	0.144328	0.092089	-0.01455	0.042987	0.302009	0.22714	0.028269	-0.34074	-0.14495	-0.16674	-0.28359	0.21986	0.424973	0.571906	0.3313	0.45333	0.111875	0.252082	1		
Loss of Interest	0.366988	0.09524	0.173157	0.101768	-0.04556	2.5E-17	0.51379	-0.18309	0	0.04828	0.176715	-0.2048	0.290664	0.366988	0.50687	0.121967	0.486769	0.276656	0.216541	0.42889	1	

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21
sadness	1																				
pessimism	0.414208	1																			
past failures	0.653835	0.081487	1																		
loss of pleasure	0.310062	0.140859	0.564725	1																	
guilty feelings	0.375588	0	0.315183	0.11176	1																
punishment	0.261968	0.439205	0.274863	0.504827	-0.2962	1															
self-dislike	0.516162	0.102383	0.385439	-0.3115	0.132002	-0.06475	1														
self-criticalness	0.032823	0.09245	0.203403	-0.2344	0.320912	-0.09745	0.141979	1													
suicidal thought	-0.04001	0	0.013774	-0.30952	0.11176	0.059391	0.20767	0.546942	1												
crying	0.45481	0.480384	0.587175	0.473665	0.15881	0.33758	0.147549	-0.13323	-0.13533	1											
agitation	0.170502	-0.37519	0.454924	0.431244	0.044652	0.22147	-0.00922	-0.16649	-0.20294	0.072094	1										
loss of interest	0.461003	0.347804	0.46448	0.333141	-0.023	0.4155	0.31336	0.064309	0.039193	0.556932	-0.16703	1									
indecision	0.084122	0.740436	0.043442	0.275344	-0.16156	0.499512	-0.07278	-0.16429	-0.22528	0.56911	-0.10668	0.226624	1								
worthlessness	0.635708	0.454124	0.336128	0.065795	0.218759	0.287213	0.526051	0.179931	0.175454	0.06233	0.128517	0.054153	0.092229	1							
loss of energy	-0.14149	-0.1107	-0.0866	-0.11227	-0.2635	0.210042	-0.0136	0.368438	0.074848	-0.21272	0.079745	0.061604	-0.15738	0.103418	1						
changes in sleep	0.573331	0.208817	0.517282	0.211816	-0.15187	0.249461	0.40193	0.154441	0.023531	0.40125	0.275777	0.503551	0.074216	0.303453	0.314384	1					
irritability	0.765857	0.532624	0.598945	0.213821	0.303738	0.336861	0.441704	0.073862	0.045015	0.575694	0.287761	0.314923	0.319443	0.528675	-0.28302	0.522739	1				
changes in appetite	0.199531	0.33059	0.077235	0.18161	0.262295	0.226507	0.081232	0.045845	-0.16764	0.397026	-0.02977	0.321945	0.205616	0.2831	0.395247	0.262325	0.237708	1			
concentration	0.465496	0.172516	0.472343	0.369368	0.239535	0.521298	0.162496	0.063797	-0.01944	0.165748	0.393534	0.464015	0.091971	0.376051	0.045835	0.326621	0.532941	0.239535	1		
fatigue	0.378962	0.136845	0.086978	-0.10409	-0.24429	0.230796	0.302628	0.113862	0.185048	0.131477	0.012322	0.437877	-0.08511	0.202414	0.563543	0.777257	0.174929	0.298581	0.160535	1	
loss of interest	0.424139	0.351364	0.584084	0.460283	-0.05227	0.574074	0.064752	2.16E-17	-0.05939	0.67516	0.332205	0.562147	0.515122	0.054707	0.140028	0.63099	0.505291	0.209083	0.448559	0.346194	1

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21
sadness	1																				
pessimism	-0.25122	1																			
past failures	0.155417	-0.01996	1																		
loss of pleasure	0.281161	0.054153	0.720277	1																	
guilty feelings	-0.05783	-0.33416	1.53E-17	-0.09349	1																
punishment	-0.09057	-0.19189	0.064752	0.043928	0.240946	1															
self-dislike	0.101745	0.431124	0.33945	0.230283	-2.3E-17	-0.12717	1														
self-criticalness	0.055334	0.021315	0.316475	-0.05367	-0.0736	-0.2997	0.155386	1													
suicidal thought	-0.15542	0.419079	0.296296	0.201008	-1.4E-17	-0.06475	0.145479	0.079119	1												
crying	-0.06529	0.213773	0.412305	0.622745	-0.04342	-0.0136	0.030557	-0.23266	0.326732	1											
agitation	-0.10174	-0.05879	-0.20609	-0.34542	0.202999	0.031793	-0.07143	0.284875	0.327327	-0.23681	1										
loss of interest	0.274319	0.052835	0.403128	0.310439	-0.18244	0.06667	0.064194	0.209472	0.032686	0.31581	-0.14979	1									
indecision	0.072816	-0.02805	0.190879	0.070632	1.08E-17	-0.13652	0.13632	-0.11121	-0.36441	-0.18588	-0.37488	0.26034	1								
worthlessness	-0.26074	0.03348	0.669699	0.430905	0.115607	0.313834	0.44746	-0.05162	0.020712	0.330635	-0.23051	0.146233	0.262012	1							
loss of energy	0.324757	-0.10723	0.453295	0.345017	0.246838	0.589544	0.195421	0.10628	0.099504	0.160233	0.03257	0.312229	-0.13986	0.290594</							

## Discussion

In the following section, I will attempt to explain a few of the “whys” within the results. What are the reasons why certain cultures manifest major depressive disorder in a different manner than other cultures? The following analysis of the data is based upon my own ideas and conclusions that may begin to explain some of the results. It is essential to note, however, that my conclusions are not definitive, and further research is needed to explain cross-cultural similarities and differences.

The Western population displayed the lowest overall average score of the BDI-II (15.45), the Bamako population displayed the middle overall average score (16.45), and the Sanankoroba population displayed the highest overall average score (19.00). The data supports the notion that both poverty and poor physical health lead to poor mental health and possibly depression. The living conditions in Sanankoroba are dismal in comparison with Bamako or the United States. Of the twenty individuals interviewed in Sanankoroba only three individuals had access to running water and eleven individuals had access to sporadic electricity. Furthermore, the literacy rate of the Sanankoroba sample was 10%. Poor living conditions and poor education levels lead to poverty and poor physical health, which in turn lead to the dangerous cycle of depression. It should not be noted, however, that low education levels have been shown to correlate with higher BDI-II scores in previous studies, and this may account for the higher BDI-II scores in lieu of a higher prevalence of depressive symptoms in the community.

The Western population displayed the highest average score (.90) for item 1 of the BDI-II, sadness. The Sanankoroba population displayed the lowest average score (.60) for sadness and the Bamako population displayed a median score (.25). This data supports my hypothesis that Western populations are more inclined to express sadness as a symptom of depression than non-Western populations. Furthermore, this data supports the hypothesis that

the Bamako population has begun to shift its expression of illness behavior as the city is westernized as a result of globalization.

The second item of the BDI-II is pessimism, and it followed the same trend as sadness (average 1.0 score for the Western population, average .65 score for the urban population, and average .30 score for the rural population). Pessimism is related to one's expectations about the future. Many Malians do not fixate on the future the way Westerns tend to fixate upon the future. Day-to-day survival in Mali is difficult enough that most Malians cannot worry about the future as well as the present struggles. I believe the Western obsession with the future may have evolved from excess and luxuries. It can be seen from the data collected in Bamako that as daily survival becomes a less pressing issue, people are starting to contemplate their future, and sometimes through a pessimistic perspective.

Items 3 and 8, past failures and self-criticalness, both demonstrated approximately equal average scores across the three populations. What do past failures and self-criticalness have in common that might explain this cross-cultural similarity? I believe the ability to look back in hindsight and critique one's past faults or mistakes is a universal within humankind. The ability to assess one's weaknesses and errors helps to ensure that the errors will not repeat themselves in the future; it is an incredibly useful aspect of human development and evolution.

Items 4 and 12, loss of interest and loss of pleasure provided a strange anomaly in the data. The data on loss of interest showed approximately equal scores for the urban and rural Malian samples (1.35 and 1.40 respectively) and a much lower score (.30) for the Western sample. Loss of pleasure, on the other hand, showed equal scores for the Western and Sanankoroba populations (.60) and a slightly higher score for the Bamako population (.75). I believe the answer to this irregularity lies in the exact phrasing of the BDI-II questionnaire. Item 4 evokes the notion of not taking pleasure or enjoyment "from the things I used to

enjoy,” while item 12 mentions losing “interest in other people or things.” Most westerners can conceptualize growing tired or not taking as much pleasure from something that was once new and exciting. For example, individual X used to enjoy playing soccer, but today he or she no longer takes enjoyment from the sport. It is much more difficult for a Westerner to conceptualize the general loss of all interest in other people or activities.

Past studies suggest that item 5, guilty feelings, is a key symptom of traditionally Western depression. The data show a high average guilt score (1.20) for the Western population and approximately equal lower scores for the urban and rural Malian populations (.55 and .50 respectively). Guilt is indicative of remorse and regret. If one is capable of feeling guilt then he or she is capable of self-consciousness and evaluation of past decisions. Furthermore, feelings of guilt are only possible if one believes that he or she is responsible for his or her actions. Thus feelings of guilt should be more prevalent in Western societies because they tend to center more about the culture of the individual.

In contrast, past studies suggest that item 6, punishment feelings, is a key symptom of traditionally non-Western depression, in which the emphasis is placed on psychosomatic symptoms and paranoia. The data show the highest average score (1.20) for the rural population, a middle score (.70) for the urban population, and the lowest score (.40) for the Western population. This is to be expected because once again, it reflects the question of who is responsible for one’s fate. In order for someone to feel punished, someone must be punishing the subject. Higher punishment scores indicate that one does not feel responsible for his or her own suffering, and therefore, is not entirely responsible for his or her own life position.

Item 7 and 14, self-dislike and worthlessness, both displayed higher scores for the Western population (.80 and .90) and approximately equal lower scores for the two Malian populations (.35, .30, .40, and .45). Self-dislike and feelings of worthlessness are two closely

related concepts linked by the idea of value. What causes an individual to value their existence in comparison to others? Once again, the individualist society that dominates Western culture emphasizes a culture in which one individual's worth can be compared against another's worth. If a society is comprised of unique, disjointed individuals, surely certain individuals are more valuable than others.

All three populations scored approximately equally for items 13 and 17, indecisiveness and irritability (.85, .80, .70 and .60, .60, .60). Indecisiveness is related to one's ability to confront decisions. It is human universal that everyday one is faced with making decisions. The evaluation of the possible choices and their outcomes is a difficult process for everyone, and therefore, it is not surprising that all three populations expressed some anxiety over their decision-making capabilities. The sensation of irritability, furthermore, is also a near universal experience. Everyone is familiar with feeling cantankerous, grouchy, and short-tempered from time to time.

Item 9, suicidal thoughts or wishes, is one of the more controversial items on the BDI-II, and therefore the data collected from this item must be regarded with extreme care. The findings suggest low rates of suicidal thoughts from all three populations, but particularly low within the rural population. It is likely that this finding can be explained by the cultural taboo against suicide that is common in Islamic regions. The marginally higher scores on the subject of suicidal thoughts in the urban population and the Western population are best explained by how suicide is viewed by the general public. Individuals who contemplate suicide can either be viewed as sympathetic victims or as ungrateful sinners. The viewpoint of sympathy is relatively accepted in Western society, and thus, individuals are more likely to contemplate the idea of suicide, without the intention of carrying out their ideas.

Item 10, crying, was one of the items that provided the most unexpected results, and therefore also provided one of the most insightful perspectives on the powerful influence of



cultural-relativism. Crying scored very high results from the Sanankoroba population (1.60) and Bamako population (1.50), but much lower average scores were found within the Western population (.50). For item 10, the most intense answer choice “I feel like crying, but I can’t” was selected 50% of the time. Therefore, the results do not suggest that people in Mali cry more frequently than in Western societies, in fact, they suggest just the opposite. Based on my experiences and observations of Malian culture, I believe this potent answer choice was picked preferentially by Malians due to a cultural taboo against crying. Even in situations that merit expressing sadness or grief, it is only rarely that one sees a Malian individual crying. This is vastly different from Western societies where crying publically or privately is socially accepted. Western media, such as television sitcoms or news programs, frequently show images of people crying. In western countries, many people associate a person who is crying with sympathy; however, in Malian society, most people associate crying with weakness, and hence, the sample indicated that they “can’t” cry even though when they feel depressed.

Item 11, agitation, displayed a similar trend to crying in which the Malian populations scored highly (1.70 and 1.60) while the Western population scored significantly lower (.60). Like crying, these results were also surprising, because my observations of Mali suggest that Malians are significantly more sedentary than Americans. The explanation may lie in the fact that agitation has a somewhat negative connotation in the United States, but perhaps in countries such as Mali, agitation is associated with productivity and energy. Further research would provide insight into this unanticipated irregularity.

Another area where the data suggested startling results was within item 18, changes in appetite. Changes in appetite are a physical manifestation of depression, and thus, it was hypothesized that the rural population would on average provide higher scores within this category. However, the results suggest that all three populations scored approximately equally (.65, .70, and .70). Further research is also needed in this topic to fully comprehend

the difference between a physical symptom that addresses eating habits and other physical symptoms. However, this difference may be related to the fact that food exists in limited quantities. Unlike the insomnia or hypersomnia, one is not capable of eating at any given time that one chooses. Quite on the contrary, the correct resources must be available in order for someone to change their typical appetite patterns.

Item 29, concentration difficulty, is the final item with unexpected results. The Western population had the highest average score (1.20), followed by the Sanankoroba population's score (1.00), and then followed by the Bamako population's score (.75). This data was surprising because I cannot imagine many people in Sanankoroba needing to concentrate on a long period time on any single tedious task. The majority of the work that needs to be performed for daily survival is mind-numbing, simple, and dull—hardly the kind of work that requires concentration. For this reason, I was surprised that the Sanankoroba population scored higher than the Bamako population. Once again, this difference may be attributed to different cultural connotations of conceptions of the words “concentration difficulty.”

Items 15, 16, 20, and 21, loss of energy, changes in sleeping pattern, fatigue, and loss of interest in sex, all followed approximately the same trend. There four items displayed very high scores for the rural population and significantly lower scores for the urban and western populations. This data support the hypothesis that non-Western cultures are more likely to emphasize psychosomatic symptoms and that the population in Bamako will change its illness behavior to incorporate traditionally Western mannerisms as globalization progresses and the culture of Bamako evolves within an increasingly less isolated city.

## Further Implications:

At the closing of my Independent Study Project, what are the final messages one should take away from this study. The following conclusions are based on the collected Beck Depression Inventory-II data as well as information collected through interviews with medical professionals in Bamako.

1. Globalization is having an immense effect on illness behavior in Bamako, and therefore, it is probably affecting other rapidly urbanizing cities as well. In order to provide adequate mental healthcare treatment, public health officials must examine the patterns of which illness behaviors are changing within cultures and which illness behaviors are remaining unchanged.
2. Different cultures reflect the different survival skills of different populations. The Western world is inclined to display depressive symptoms such as sadness, guilt, self-dislike, and worthlessness because a culture of individualism is a necessary survival skill. The culture of the community found within non-Western societies is necessary for survival within certain populations, and this collectivism affects illness behavior.
3. This study depicts several depressive symptoms that do not fit the hypothesized pattern. Further research is required to validate these findings and provide an explanation for why certain trends are not being followed.
4. There is a delicate relationship between poverty, poor physical health, and poor mental health. If all three of these concepts are perpetually linked, then all three issues must be addressed if the public health world is to find success in the alleviation of poverty, poor physical health, and poor mental health from our planet.

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