A STUDY OF THE EFFECTIVENESS OF TRANSDISCIPLINARY TEAMS

ON THE TREATMENT OF DEPRESSED PATIENTS ENROLLED IN THE

MEASURING AND TRACKING INTEGRATD HEALTH CARE (METRIHC)

PROGRAM

by

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Abstract

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Objective

The purpose of this study will be to determine if METRIHC is an effective

model for treating depression in minority populations.

Methods

The data for the study was collected from 2013 through 2014 as part of an

assessment of a Collaborative Care Model. Participants were administered Patient

Health Questionnaires PHQ-9 and General Anxiety Disorder GAD-7 every office

visit or every three months to rate METRIHC effectiveness.

Results

A Paired Samples T-Test in which the results of participant's initial and

final PHQ-9 scores were compared and the results of the participant's initial and

final GAD-7 scores were compared. Both results showed a statistically significant drop in scores for both depression and anxiety.

Conclusion

Findings from this study suggest that METRIHC could be an effective form of treatment for a primarily Hispanic, Spanish speaking female population, but without a control group in which to compare results, it is not possible to determine if the decrease in depressive symptoms and anxiety symptoms was a results of METRIHC entirely.

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Chapter 1

Literature Review

Mental illnesses such as anxiety and depression are seen as some of the most common and most disabling mental health issues worldwide; one report estimates that by the year 2030 depression will be one of the leading causes of disability (Young, & Skorga, 2013). In the United States, it is estimated that at least one out of every ten adults suffer from depression. Depression is found to be most common in adults ranging from the ages of 45 to 64 years of age. It has also been found that women and members of minority groups have a higher prevalence rate. Among these multiracial and multicultural groups consists of Hispanics, African-Americans, Asians and American-Indians. High rates of depression have also been found to correlate with being unemployed, being unable to work due to disability, lower education levels and having been previously married. Hispanics in 2002 made up the largest minority group within the United States of American. As of 2010, Hispanics made up 13% of the United States population and are projected to increase to be a quarter of the population by the year 2050 (Daza, Novy, Stanley, Averill, 2002; Patel, Bakken, 2010). Studies show that depression has a lifetime percentage of at least five percent among Hispanics (Centers for disease control, 2011; An estimated, 2012; Unützer, Harbin, Schoenbaum, & Druss, 2013; Macarthur foundation, 2012; Thota et al., 2012).

Depressive disorders can include major depressive disorder, persistent

depressive disorder, disruptive mood dysregulation, and depressive disorder to

due to a general medical condition. The most common aspects of all these

diagnoses are a sad and or irritable mood which can be accompanied by cognitive

changes that affect an individual's ability to function. The differences between

these diagnoses are determined by the cause, timing and duration of the

depression (American Psychiatric Association, 2013). Of these diagnoses, major

depressive disorder has been called the most classic condition. Major depressive

disorder has several characteristics. For an individual to be diagnosed with major

depressive disorder, they are depressed for at least two consecutive weeks. An

individual's depressed mood is present most of the day, every day as evidenced

by the individual being sad, feeling empty or hopeless. An individual must also

experience a decreased interest or pleasure in previously enjoyed activities. It is

also possible for an individual to either have trouble sleeping or sleep excessively.

Those who struggle with depression may also experience unintentional weight

gain or loss. Lastly, depression affects an individual's ability to concentrate, and

they may often have thoughts of suicide or death (American Psychiatric

Association, 2013).

Currently, most people with depression and anxiety are thought to be

treated primarily within primary care settings. Once an individual is diagnosed

with depression by a primary care provider, frequently a referral to a mental

health specialist is made. Research has shown that only 50 percent of the people follow through with these referrals, and of those that follow through with referrals, it is estimated that approximately 40 percent of patients stop taking their antidepressant medication after four to six weeks. Patients were said to have stopped their medication in a short amount of time due to a shortage of primary care clinics (Unützer et al., 2013; Katon, Unützer, Wells, & Jones, 2010). Other reports show that only 20 percent of people diagnosed with mental illnesses receive proper care (Unützer et al., 2013).

Most people are diagnosed with depression in primary care settings and the type of care they receive does not always improve their depressive symptoms. In fact, it is reported that minority groups are at an increased risk for poorer clinical outcomes. One particular study, The Sequenced Treatment Alternative to Relieve Depression, found that African-American's were twice as likely to experience worsening symptoms of depression. However, this result was found to be correlated with the medication citalopram, and worsening symptoms could have resulted from more severe side effects of the medication and less frequent clinical visits (Davis, Deen, Bryant-Bedell, Tate, & Fortney, 2011; Thota et al., 2012; Macarthur foundation, 2012).

Hispanics have been reported to have a high comorbid rate of depression. Research has shown that Hispanics are less likely to be diagnosed accurately, and less likely to receive the proper treatment for their depression. This may be due to

a number of factors such as not adhering to treatment due to a belief that side-effects of the medications will be severe, cultural stigmas and socioeconomically defined stressors as Hispanics view depression as something that is caused by social stressors instead of being genetic (Ell et al., 2011; Cabassa, Hansen, Palinkas, & Ell, 2008). Hispanics also believe depression is due to interpersonal problems such as stress from a divorce or problems within the home. Examining the way Hispanics view depression and its origins may account for the social stigma they believe accompanies depression. (Hansen, Palinkas, & Ell, 2008; Givens et al.,2007).

One study examined that Hispanics feel there is a greater power in prayer for healing depression than compared to whites or African Americans. It was also found that Hispanics, when they sought treatment for mental illness, preferred counseling over medications due to the general belief that antidepressants are habit forming. Research also found Hispancis, according to Givens et al. (2007) do not mind receiving counseling from someone of a different ethnicity, but that sharing the same language may be very important to Hispanics (Givens et al., 2007). Because most people are diagnosed with depression in primary care settings, and the type of care they receive does not always improve their symptoms the quality of care received by depressed individuals needs to be improved upon (Davis, Deen, Bryant-Bedell, Tate, & Fortney, 2011; Thota et al., 2012).

Early efforts to improve treatment of mental disorders within a primary care setting focused on three primary goals. These goals were to focus on screening for common mental health disorders, provide education to primary care providers, and to develop a set of treatment guidelines and establish referrals to a mental health specialist. Research found these efforts to improve treatment in a primary care setting were ineffective individually, and in any combination. When primary care providers screened for mental health issues, many of those providers did not have a way to follow up with those screening positive for mental health issues (Unützer et al., 2013). Another attempt at improving care for those in primary care settings was to have a mental health specialist within the primary care clinics, or to have primary care providers within mental health facilities. Research found having a primary care provider and a mental health specialist in the same location improved access to mental health services, but did not improve the outcomes of those diagnosed with mental health issues (Unützer et al., 2013).

In order to improve treatment of mental health issues within the primary care setting, the concept of collaborative care was developed. When collaborative care models first started off, they were known as chronic care models. Wagner et al (2001) states that chronic care models apply a number of rules, these rules help ensure a higher-quality health care. These rules include a care team that stress continuous working relationships within the team, individualizing the care of each patient in accordance to their needs, anticipating the patients' needs as best as

possible, and providing evidence-based practices (Wagner et al., 2001). Chronic care models work best when conducting reviews of the patients treatment progress, assist the patients in setting treatment goals and assist the patient in learning problem solving techniques as well as ways to manage their condition. Chronic care models also work best when behavioral or clinical interventions are applied to the patient to attempt to prevent illness complications that would impact the well-being of the patient, and to follow up with the patient on a regular basis. Wagner et al. (2001) notes that for chronic care models, now known as collaborative care models, to be effective the patient needs to not only be active in their care, but be a participant in their care. This model allows for patients to gain information about their illness and make informed choices regarding their treatment (Wagner et al., 2001).

Chronic care models, which are known as collaborative care models focus on three particular concepts, to provide a population-based care, a measurement-based care and finally stepped care (Katon, 2012). Population-based care can be defined as improving the quality of care that a particular population receives in regards to a chronic illness. Once an individual begins receiving care in a primary care setting, the care needs to be monitored and measured. In order to accomplish this, a tracking and measurement system needs to be utilized. A tracking and measurement system would allow a primary care provider to monitor patient visits, help their adherence to treatment, and monitor medication dosages. For

depression, the Patient Health Questionnaire-9 (PHQ-9) allows primary care physicians to both accurately diagnose depression and monitor an individual's treatment so to improve their quality of care. The idea of this is that that an individual will be treated more effectively. This is called measurement-based care. Stepped care takes the monitoring of an individual's care further, and makes necessary changes to the level of care such as the intensification of medication (Katon, 2012).

Collaborative care models can include a number of professionals. These professionals include a primary care provider, members of a care management staff, and a psychiatric consultant. A primary care provider can consist of a family physician, an internist or a physician's assistant. Care management can consist of a clinical social worker, a nurse, a psychologist or any mental health professional trained to provide evidenced based care, behavioral interventions, and support the treatments of the primary care provider. A psychiatric consultant consists of someone who advises the treatment team by focusing on individuals who are either difficult to diagnose, or not showing any clinical improvements (McCusker et al., 2013; Unützer et al., 2013). Collaborative care models have been found to be effective in not only treating depression, but has been found to be effective in treating people with bipolar disorder, anxiety disorders and even schizophrenia (Unützer et al., 2013).

As this study will focus on the evaluation of a collaborative care model's effectiveness in both the treatment of depression and anxiety it is important to cover the definition and prevalence of anxiety. Research has shown that mental illnesses can co-occur with another mental illness, or with a medical illness. Research has shown that individuals who struggle with some type of a medical illness also report high rates of depression and anxiety. It has been documented that high rates of depression and anxiety can impair treatment effectiveness or adherence to treatment (Unützer, Schoenbaum, Druss, & Katon, 2006).

Anxiety disorders are disorders which include fear and apprehension. Fear is defined as an emotional response to a perceived or real threat that is immediate. Anxiety is defined as the anticipation of a future threat. The various types of anxiety disorders differ from each other depending on the situations or objects that induce fear and anxiety or avoidance of a situation. It is important to note that anxiety disorders are different than societal fear or anxiety that may be developmental norms. Anxiety disorders are different than the developmental norms by being excessive or persisting beyond the developmental period (American Psychiatric Association, 2013).

Anxiety disorders, specifically generalized anxiety disorder, which this study will focus on in addition to depression consists of excessive worry and anxiety, occurring for most days of the week, not lasting for more than six months. When experiencing anxiety or worry, the individual will have difficulty

controlling it. Being anxious or worried may also cause individuals to be irritable, have sleep disturbances, difficulty concentrating, or be easily fatigued. An individual with generalized anxiety disorder will also experience distress in important areas of functioning such as social environments or occupational environments. Generalized anxiety disorder is more prevalent in middle age, and females are twice as likely as males to be diagnosed with this disorder (American Psychiatric Association, 2013).

To date, there have been several collaborative care models. One of the most widely known and the most tested includes the IMPACT model of depression. Research results from IMPACT showed that the participants of IMPACT were twice as likely to have shown an improvement in their depressive symptoms compared to those receiving treatment in a primary care setting (Unützer et al., 2013; IMPACT). Another collaborative care model, Prevention of Suicide in Primary Care Elderly: Collaborative Trial (PROSPECT). PROSPECT conducted a two year study in which elderly individuals were split into two groups, an intervention group for major depression and minor depression and a control group. Compared to the control group, the major depression intervention group showed decreased depression at four month intervals, all the way up to two years. The individuals with minor depression did not show any difference in their depressive symptoms than in the control group (NREPP, 2013).

In short, collaborative care models such as IMPACT have been proven to be effective in treating adults of all ages with depression regardless of their ethnicity. Collaborative care models have also been found to be more cost effective than primary care (Arean, et al., 2005; Unützer et al., 2013).

This study focused on the treatment of a primarily Hispanic population who screen positive for depression or anxiety by using a Measuring and Tracking Integrated Health Care (METRIHC). METRIHC had multiple goals. The first goal was to implement the Measurement-based Integrated Health Care for the treatment of depression using an existing screening and monitoring packet (SMP). The second goal was to create a collaborative team skilled in Cognitive Behavioral Therapy (CBT), Problem Solving Treatment (PST), and Motivational Interviewing (MI) all used in clinical monitoring and depression care to improve patient adherence to treatment, treatment outcomes and possibly lowering the cost of healthcare. The third goal was that patients enrolled in METRIHC would experience a decrease in depression, which would be measured by the PHQ-9. The fourth goal of METRIHC was that for the patients enrolled, they would experience improved health and physical functioning. The fifth goal was to evaluate treatment outcomes patients enrolled in METRIHC. The sixth goal was to evaluate the execution of the Measurement-based Integrated Health Care program, the collaborative care team and determine if the METRIHC program had long term sustainability (Sanchez, & Trivedi, 2012).

While METRIHC had multiple goals, this study focused on the effectiveness of METRIHC. For the purpose of this study, data was gathered by using Screening and Measurement Packet (SMP). Each patient enrolled filled out two questionnaires at baseline, the Patient Health Questionnaire 9 and the Generalized Anxiety Disorder 7. These two questionnaires provided feedback to determine the effectiveness of METRIHC. METRIHC measured each patient's mental health symptoms from the time they enrolled in METRIHC to the time that they left or completed the program. The questionnaires were administered to patients enrolled on a regular basis, each office visit to determine the level of their mental health symptoms. Visits were with the primary care physician or care manager (Sanchez, & Trivedi, 2012).

This study focused on establishing a universal screening for depression within a medical primary care setting. This study was different than previous studies on collaborative care models as this study built on previous research suggesting that collaborative care models were effective in both the identification and treatment of clinical depression. The purpose of this study was to determine if METRIHC was an effective model for treating depression in minority populations (Sanchez, & Trivedi, 2012).

Chapter 2

Methods

Setting

This research project involved the Measurement and Tracking Integrated Health Care Program in in one community-based Federally Qualified Health Centers (FQHC) in the North Texas Area Community Health Center, Inc. (NTACHC) of Fort Worth, Tarrant County (Sanchez, & Trivedi, 2012). NATCHC consists of three operational clinics, the Northside Community Health Center, Southside Community Health Center, and Wise Country Community Health Center. This study will examine data at the main clinic which is the Northside Community Health Center (Sanchez, & Trivedi, 2012).

Northside FQHC is governed by a board of community members consisting of nine people, and at least 51% of these members must be patients at Northside FQHC. Northside FQHC received a number of benefits which include but are not limited to federal grants, drug pricing discounts, and reimbursements from Medicare which are known as, "first dollar" coverage. First dollar coverage is defined as a health care plan that pays both deductibles and co-payments to ensure that the recipient does not have an out of pocket cost (The medicare newsgroup, 2012; Sanchez, & Trivedi, 2012). Northside FQHC referred patients out to community providers specializing in dental and mental health services which include substance abuse and addiction services. Northside FQHC was also

contracted with Walgreens in order for patients to get their prescriptions filled (Sanchez, & Trivedi, 2012). As of 2012, the Northside Community Health Center's FQHC, where METRIHC took place had over 7,991 patients. Of those 7,991 patients 83% were Hispanic, and 73% were uninsured with the majority speaking another language besides English (Sanchez, & Trivedi, 2012). The data for the study was collected in 2013 through 2014 as part of an assessment of a collaborative care model known as The Measuring and Tracking Integrated Health care (METRIHC). This study was approved by the Institutional Review Boards at the University of Texas at Arlington (Sanchez, & Trivedi, 2012).

METRIHC Collaborative Care Model

The Measuring and Tracking Integrated Health Care (METRIHC) consisted of a research plan for collaborative based care. METRIHC utilized a screening and monitoring packet, an integrated health care team, primary care provider, a care manager, physician's champion, psychiatric consultant, project leadership and principal investigator, a co-principal investigator, project consultant, the patient, patient's family and loved ones. The collaborative care team utilized a screening and monitoring packet during METRIHC's program. The screening and monitoring packet (SMP) consisted of the Patient Health Questionnaire 9 (PHQ-9), the Generalized Anxiety Disorder Assessment 7 (GAD-7), a 12-item Short Form survey and a Patient Adherence Questionnaire. This

study only focused on the Patient Health Questionnaire 9 and the Generalized

Anxiety Disorder Assessment 7 (Sanchez, & Trivedi, 2012).

METRIHC's program consisted of an integrated health care team. This

team was designed to work together to improve patients mental health

functioning. Improved mental health functioning was defined as decreased scores

on the PHQ-9 and GAD-7 as both depression and anxiety affect the way people

think and make decisions (American psychiatric association, 2013). The team

consisted of primary care providers, which included physicians and nurse

practitioners. The primary care providers worked directly with the care managers

to address patients' treatment concerns. The primary care providers also

prescribed all medications for the Northside FQHC patients (Sanchez, & Trivedi,

2012).

The METRIHC care manager consisted of a Licensed Master Social

Worker (LMSW). The care manager provided depression care management.

Patients were educated on depression, treatment and provided psychosocial

interventions in the form of behavioral activation. Behavioral activation is a part

of cognitive behavioral therapy, serving as a way for therapists to assist the client

in engaging or re-engaging in sources providing positive reinforcement.

Behavioral activation also includes setting goals that are task-focused and

reducing conditions that are aversive (Chartier, & Provencher, 2013). Behavioral

activation became a potential treatment for depression, once it was realized that

depressive symptoms resulted in an individual reducing positive reinforcement, or experiencing an increase in aversive conditions. The idea is that reduction of positive reinforcement and an increase in aversive conditions can lead an individual to become more depressed. When the clinician assists patients in engaging in previously enjoyed activities and help schedule activities the client may feel a sense of accomplishment which has been shown to lower depression (Chartier, & Provencher, 2013). The care manager met with patients either in person or over the phone in order to review the patients' treatment plan, explain the treatment to the patient, and address any barriers the patient experienced in regards to treatment. Care managers received training on collaborative care, and acted as a liaison between the psychiatrist and primary care physician (Sanchez, & Trivedi, 2012).

METRIHCS's program also consisted of a physician champion and a psychiatric consultant. The physician champion served as a liaison between the primary care providers and mental health providers. The psychiatric consultant consisted of a psychiatrist from the Mental Health and Mental Retardation of Tarrant County. The psychiatrist provided consultation and training to the primary care providers, care manager and nurses to better diagnose and address each patient's specific treatment need. The psychiatrist also evaluated patients with diagnostic or treatment difficulties and provided treatment recommendations to the primary care physician and clinical care manager (Sanchez, & Trivedi, 2012).

The project leader and principal investigator provided training and oversaw the implementation of the METRIHC. The project leader also consulted with a depression care delivery expert for the best-practice treatment. The principal investigator collected data, analyzed findings and reported the outcomes of METRIHC. The co-principal was the depression care delivery expert, specializing in the best-practice treatment for high-risk groups. The co-principal also used cost-saving approaches within this collaborative care model. Lastly, METRIHC's program included the patient, their family or loved ones. The patients and their families were educated about the treatment and learned self-management skills in the midst of receiving support by either family members or loved ones (Sanchez, & Trivedi, 2012).

Sample

The sample of METRIHC consisted of the adult primary care patients at the Federally Qualified Health Center that screened positive for depression via the Screening and Monitoring Packet (SMP). Subjects (n=60) enrolled in METRIHC received treatment for their depression as part of their care at the facility. Those enrolled were administered a Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-7). These questionnaires were administered at every office visit with the primary care provider, or every three months, whichever come sooner to evaluate the effectiveness of METRIHC. Assessments

also took place over the phone administered by the clinical care coordinator (Sanchez, & Trivedi, 2012).

<div align="center">Measures</div>

This study examined the effects of treatment for patients to determine the level of improvements, if any, in their depressive symptoms of those enrolled in the Measuring and Tracking Integrated Health Care (METRIHC). The variables of the study consisted of depression and anxiety as measured by the Patient Health Questionnaire (PHQ-9) and the Generalized Anxiety Disorder (GAD-7). These scales were administered during the initial visit in which the patient began receiving treatment, and every contact thereafter to determine a change in mental status. These assessments were offered in person, at the treatment facility or over the phone, in both English and or Spanish (Sanchez, & Trivedi, 2012).

The Patient Health Questionnaire (PHQ-9) is a 9 item measure based on the DSM diagnostic criteria for depression. It is used to determine the participants' current state of depression, within the previous two weeks (Kroenke, Spitzer, & Williams, 2001). A score of 1-4 consists of minimal depression, 5-9 consists of mild depression, 10-14 consists of moderate depression, 15-19 consists of moderately severe depression and 20-27 consists of severe depression. Appendix A shows the questionnaire in its entirety. The internal reliability of the PHQ-9 according to a Cronbach α is 0.89 in a primary care setting and 0.86 in an OB-GYN setting. Criterion validity of the PHQ-9 according to a ROC analysis

showed a 0.95, meaning the PHQ-9 is able to distinguish between individuals

diagnosed with or without major depression (Kroenke, Spitzer, & Williams,

2001).

The Generalized Anxiety Disorder 7 (GAD-7) is a 7 item measure based

on the DSM diagnostic criteria for generalized anxiety disorder (Spitzer, Kroeke,

Williams, & Lowe, 2006). It is used to assess the participants' anxiety level. The

scores reflect the participants' anxiety levels within the previous two weeks as

follows: 0-4 consists of minimal anxiety, 5-9 consists of mild anxiety, 10-14

consists of moderate anxiety and 15-21 consists of severe anxiety. Appendix A

shows the questionnaire in its entirety. The internal consistency of the GAD-7

according to Cronbach α is 0.92. The test-retest reliability according to an

interclass correlation was 0.83, which was done by comparing the GAD-7 to

mental health professionals administering alternative versions of the GAD-7

(Spitzer, Kroeke, Williams, & Lowe, 2006).

Data Analysis

Paired samples T-Tests, a dependent T-Test, were conducted. Paired

samples T-Test compare the means of two scores from each sample related to the

study. In this study, the means of the two scores consisted of the initial and final

visits of both the PHQ-9 and GAD-7. Both Questionnaires initial and final visits

were compared separately. The paired samples T-Test assumes that both variables

consists of either interval or ratio levels and are distributed normally. The output

for the paired samples T-Test consists of three parts. The first part provides basic descriptive statistics for the variables paired together. The second part of the output is the Pearson Correlation coefficient for the set of paired variables. The third part of the output contained the paired differences of the two variables. The paired samples T-Test will include a two-tailed significance (Cronk, 2004).

For this study, the Paired samples T-Test of the Initial PHQ-9 and the Final PHQ-9 were composed of (n=54). The patients had anywhere from two to 15 office visits in which they completed a PHQ-9 in order to determine the effectiveness of METRIHC. The PHQ-9 was designed to track the patient's depression severity overtime. A clinically significant reduction in depression scores is said to be less than or equal to 50% of the patient's baseline (Delgadillo et al., 2014).

This study also conducted a Paired samples T-Test of the Initial GAD-7 and the Final GAD-7. Patients consisted of (n=54). The patients enrolled had anywhere from two to 15 office visits in which they completed a GAD-7 in order to determine the effectiveness of METRIHC. The GAD-7 was designed to track the patient's anxiety severity over time. A clinically significant reduction in anxiety scores is said to be less than or equal to 50% of the patient's baseline (Delgadillo et al., 2014). All tests conducted were performed using IBM SPSS version 21.0.

Chapter 3

Results

Sample Characteristics

Patients enrolled in Measuring and Tracking Integrated Health Care

(METRIHC) (n=60), received treatment for their depression as part of their care

at the Northside FQHC. The original group consisted of (n=60), however after

excluding cases for missing data for those who did not have a second PHQ-9 or

GAD-7 measure, the final sample was reduced. The demographics of those

enrolled in METRIHC consisted of 5 males and 49 females, all ranging from the

ages of 19 to 64 years of age, with one participant's age being unknown. The

participants consisted of seven non-Hispanic participants and 46 Hispanic

participants. One participants ethnicity was unknown. All participants identified

their race as White, with one participant's race being unknown. Seven participants

spoke English, while 45 participants were Spanish speaking. The primary

language of two participants was unknown. Ten participants were single, 27 were

married, eight were divorced, five were legally separated and two were

cohabitating. The marital status of two participants was unknown. The mean age

of the participants in the intervention group was 39.58 (sd = 9.81). The

demographics of the group enrolled in the program of are contained within Table

1.

Table 1 Demographics

Demographics	Overall n=54
Male	5
Age (M±SD)	37.8±10.16
Race	
White	5
Ethnicity	
Hispanic	5
Language	
Spanish	5
Marital Status	
Single	2
Married	2
Divorced	1
Female	49
Age (M±SD)	39.77±9.75
Race	
White	48
Unknown	1
Ethnicity	
Hispanic	41
Non-Hispanic	7
Unknown	1
Language	
Spanish	40
English	7
Unknown	2
Marital Status	
Single	8
Married	25
Divorced	7
Separated	5
Cohabitating	2
Unknown	2

Table 1 shows the demographics of male and female participants

separately as defined by their age, race, ethnicity, language and marital status.

PHQ-9

The results of the Paired samples T-Test for the Patient Health
Questionnaire (PHQ-9) were obtained by comparing the first and last visits of
those enrolled in METRIHC, (n=54). The results of the Paired Samples T-Test are
contained in Table 2. The mean on the initial PHQ-9 was 18.63 (sd=5.85). The
mean of the final PHQ-9 was 13.37 (sd=6.93). A significant decrease from the
initial PHQ-9 to the final PHQ-9 was found (t(53) = 5.76; p < .000).

The results indicate that patients enrolled in METRIHC achieved at least a
5 point drop in their scores from their initial visit to the final visit which was
statistically significant (t(53) = 5.76; p < .000). The, "t" in the equation was
determined by calculating the difference between the mean of the initial PHQ-9
and mean of the final PHQ-9. The number, "53," is the degrees of freedom. The
degree of freedom was the number of participants minus one. The, "p," value
showed the paired samples T-Test for the PHQ-9 was statistically significant
meaning the intervention group showed at least a 5 point drop in scores from their
initial visit to the final visit. Graphs of the mean of the initial and final PHQ-9
scores can be found within Figure 1. Figure 2 shows the Means of both Male and
Female participants' initial and final PHQ-9 and GAD-7 scores.
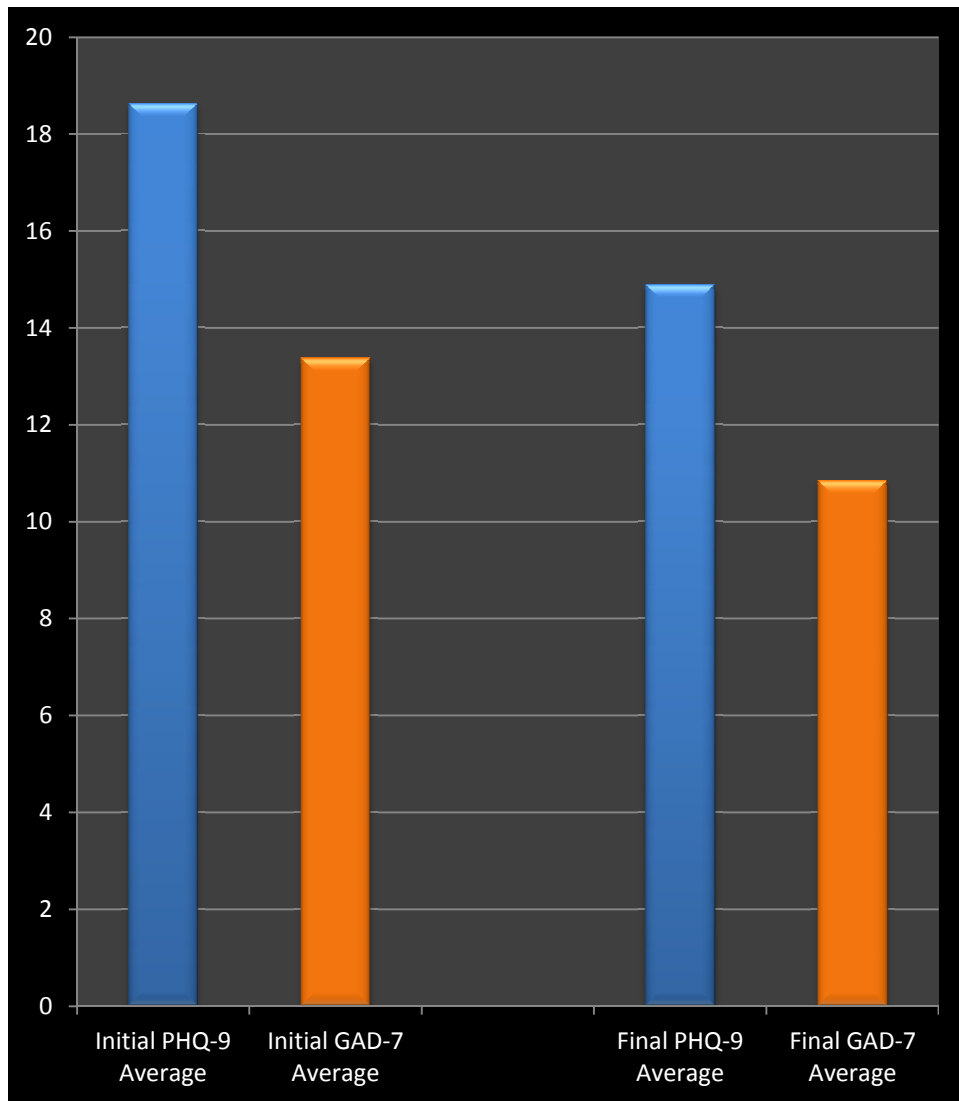
Figure 1 PHQ-9 and GAD-7 Means

Figure 1 shows means of both the initial and final scores of the PHQ-9 and GAD-7 for patients enrolled in METRIHC (n=54). The results show a decrease in scores from the initial visit to the final visit. Statistical Data is found within Table 2.

GAD-7

The results of the Paired samples T-Test for the Generalized Anxiety

Disorder (GAD-7) were obtained by comparing the initial and final visits of those

enrolled in METRIHC (n=54). The statistical results of the Paired Samples T-Test

are contained in Table 2.

A paired samples T-Test was conducted to compare the mean of the initial

GAD-7 to the mean of the final GAD-7. The mean on the initial GAD-7 was

14.89 (sd = 4.29). The mean of the final GAD-7 was 10.85 (sd = 6.132). A

significant decrease from the initial GAD-7 to the final GAD-7 was found ($t(53)$ =

4.96, p < .000).

The results indicate that patients enrolled in METRIHC achieved at least a

5 point drop in their scores from the initial visit to the final visit which was

statistically significant ($t(53)$ = 4.96, p < .000). The, "t" in the equation was

determined by calculating the difference between the mean of the initial GAD-7

and the mean of the final GAD-7. The number, "53," is the degrees of freedom.

The degree of freedom was the number of participants minus one. The, "p," value

shows the Paired Samples T-Test for the GAD-7 was statistically significant,

meaning the intervention group showed at least a 5 point drop in scores from their

initial visit to the final visit. A Graph of the means of the initial and final GAD-7

are found within Figure 1 in their entirety. Figure 2 shows the Means of both

Male and Female participants' initial and final PHQ-9 and GAD-7 scores. All

tests were done using IBM SPSS version 21.

Table 2 Results of PHQ-9 and GAD-7

	Participants	Initial Visit Mean	Final Visit Mean	Average Number of Visits (n=54)	Paired T-Test Mean	Significance
PHQ-9	(n=54)	18.640	13.37	17.46	5.26	.000***
	Males (n=5)	15.6	10.8			
	Females (n=49)	18.93	13.63			
GAD-7	(n=54)	14.89	10.85	17.46	4.04	.000***
	Males (n=5)	14.6	6.8			
	Females (n=49)	14.91	11.26			

Table 2 shows the means of both the initial and final PHQ-9 and GAD-7

(n=54). The Table 2 also shows the means of the initial and final PHQ-9 and

GAD-7 for males and females.

Note: *p<.05 **p<.01 ***p<.001

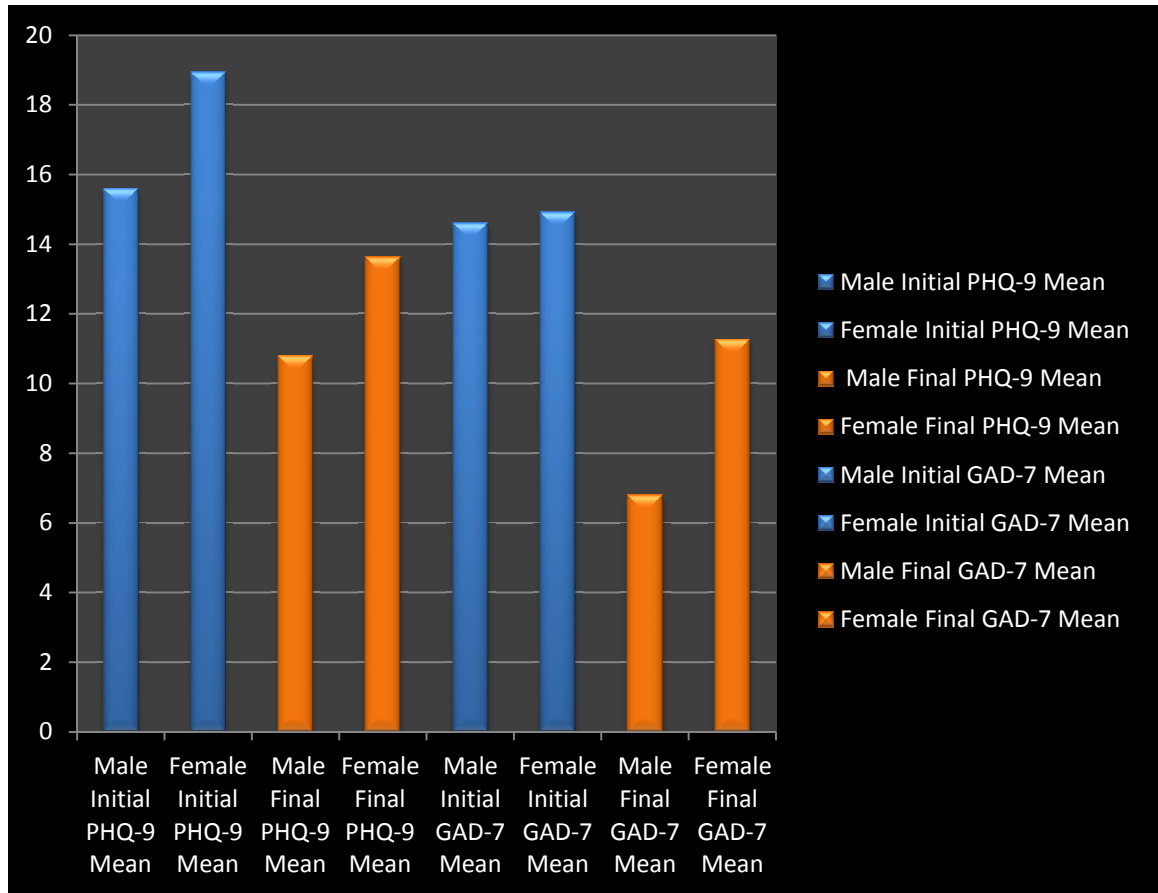Figure 2 Means of Initial PHQ-9 and GAD-7 by Gender

Figure 2 shows the scores of both the means of the initial and final scores

of the PHQ-9 and GAD-7 defined by both male and female participants.

Statistical data is found within Table 2.

Chapter 4

Discussion

Collaborative care models were designed to improve mental health services within a primary care setting. There were several failures noted with attempting to improve treatment options in primary care settings such as the screening for multiple disorders without being able to follow up with the disorders screened and co-locating a mental health specialist within the primary care setting (Unützer et al., 2013). What has been found to work is a changing of the way services are offered and followed up. In a primary care setting, there are many specialists working with one patient, they can be listed as, but not limited to, a medical doctor, a pharmacist, or a nurse. These specialists at any given time are working with the patient. Collaborative care requires a care manager; this is what makes collaborative care different. Collaborative care's care manager coordinates the treatment options and treatment specialists, monitors the patient's adherence to treatment, measures how the patient is responding to treatment, and educates the patient on how to manage their illness. The care manager may also provide therapy. These things when combined allow the patient to feel as if they have an active role in their treatment. Collaborative care also states that each patient is to receive either a follow-up visit, or a contact by telephone, or both . (Katon, Unützer, Wells, & Jones, 2010; Jacob et at., 2012).

This study was done in order to determine if a universal screening for depression within an adult primary care setting was feasible. This study built upon previous research in establishing ways to identify and treat depression. The Measuring and Tracking Integrated Health Care (METRIHC) system was designed to treat patients that screened positive for depression. Once screening positive for depression, the patients met with the social worker, the care manager. The social worker interviewed the patients, asked them about treatment preferences and worked with the patient on creating a list for goals, resulting from their current diagnosis, and medications. The care manager was then able to schedule the patient in with a primary care physician (PCP). The PCP worked with the primary care manager and was able to develop a treatment plan for the patients' mood disorder, discuss prevention options, pharmacotherapy and administering of the PHQ-9 and GAD-7 to the patients enrolled in order to track treatment progress. The questionnaires were administered by either the PCP or care manager. The care manager also referred patients to appropriate community agencies when the patients' diagnoses were considered to be beyond the expertise of the staff at Northside FQHC. The diagnoses considered to be beyond the expertise of staff at Northside FQHC included chronic psychotic disorders, substance abuse and personality disorders. (Sanchez, & Trivedi, 2012).

The purpose of this study was to determine if METRIHC was an effective model for treating depression in minority populations, primarily a Hispanic

population. This was done by having the intervention group fill out a PHQ-9 and GAD-7 after every office visit, or every three months either in person or by phone in order to determine the effectiveness of METRIHC. The results of both questionnaires were compared separately. Results showed a statistically significant drop in scores for both the PHQ-9 and GAD-7, more than a 50% drop. The intervention group was composed primarily of Hispanic, Spanish speaking woman, so a test to compare the difference of scores of the effectiveness of METRIHC accounting for ethnicity, gender and language was not performed.

The findings of this study showed METRIHC was primarily effective in treating depression and anxiety for primarily Hispanic, Spanish speaking woman. Previous research suggests that Hispanic populations were less likely to be accurately diagnosed with depression, and were less likely to receive treatment for depression. Previous research also suggests that Hispanic populations prefer primary care treatment (Sentell, Shumway, & Snowden, 2007; Ell et al., 2011). Some of the reasons for this have been cited as lower income, poor adherence to treatment, and a stigma accompanying treatment for depression. Social stigma was reported to be constant among Hispanics of all ages, and reported to have been found more common for not receiving mental health treatment than poor income or lack of insurance (Ell et al., 2011; Caporino, Chen, & Karver, 2014). Stigmatization accompanying an individual receiving treatment for mental health issues could account for why studies have shown that only 36 percent of Hispanic

populations seek treatment for depression compared to 60 percent of Caucasians. The lack of minority populations receiving care may also be to the fact that many minority groups struggle financially (Davis, Deen, Bryant-Bedell, Tate, & Fortney, 2011).

Research has shown that collaborative care models have improved depressive symptoms and helped patient adherence to treatment in minority and poverty level populations (Katon, 2012).The results of METRIHC showed just that for the minority populations. Although 22 participants dropped from the study, the adherence rate was 59%, with more than half of the participants still enrolled. Even with 22 participants having dropped out, not achieving their treatment goals, as reported by the care manager, results showed METRIHC was still effective at lowering patients' depression and anxiety. It can only be speculated that if those 22 patients had remained enrolled, METRIHC would have shown a greater drop in depression and anxiety than what was reported in the results section. It is possible that because of adherence to treatment, patients enrolled in METRIHC showed a decrease in depressive scores and a decrease in anxiety as well. The Patients enrolled in METRIHC having a greater drop in scores for both depression and anxiety shows METRIHC was successful in reducing an individual's depression and anxiety by at least a 50% on the PHQ-9 and GAD-7 respectively (Delgadillo et al., 2014).

Although this study did not examine why minority populations do not seek treatment for mental health issues, research has shown that minority populations primarily seek treatment for their mental health issues in primary care settings. It is possible that individuals enrolled in METRIHC's adherence to treatment were because the clinic employed a bilingual clinical care manager as previous research has suggested minorities are less likely to seek treatment for mental health issues either due to barriers in culture or language. Previous research also suggests that minority populations, especially Hispanics, do not like taking medications as they believe medications are accompanied by severe side-effects, and that depression is results from life events and not biological processes. For the patients enrolled in METRIHC, 39 patients out of the 54 enrolled, 72.22%, were shown to be medication compliant, as reported by the care manager, contradicting previous research (Dwight-Johnson et. al, 2010; Sanchez, & Trivedi, 2012; Givens et al., 2007).

<div align="center">Limitations</div>

This study is limited in the fact that there was not a comparison group. Based off the results of this study, it is not possible to know if the results of patients' depression and anxiety scores were due to the intervention, or if the patients' symptoms would have improved over time. This study was also limited by size, with (n=60) with six patients not having a second PHQ-9 or GAD-7 in place, the sample size was lowered to (n=54). As with any study, it is not possible

to account for history or maturation, 22 participants that did not complete the study, and dropped out for unknown reasons.

Conclusions

Overall, this study was consistent with collaborative care models reducing depressive symptoms among minority groups (Unutzer et al., 2013; Katon, 2012; Thota et al., 2012). The results of this study showed that for Hispanic, Spanish speaking women, METRIHC's collaborative care model was effective in treating women of a minority population. In the future, it would be interesting to determine further if METRIHC is effective in treating both Hispanic men and women by adding more participants, and a control group in which to compare results to. It may also be beneficial to determine if adherence to treatment in METRIHC was due to a Hispanic, Spanish speaking social worker, or due to the social worker speaking Spanish, as Givens et al. (2007) thought.

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Derek Fillmore, a native of Ada, Oklahoma completed his undergraduate at East Central University in Ada, Oklahoma with a Bachelors of Science in Psychology in 2007. He then went on to earn a Master of Human Resources with an option in Rehabilitation Counseling in 2010 from East Central University. After earning his first Master's degree, he worked for the state of Oklahoma's Department of Rehabilitation Services for two years before deciding to go back to school. As of May 2014, he will have completed the Masters of Social Work program at the University of Texas at Arlington. Derek's research interests include collaborative care models, deception, and evidence based practices. After graduation, Derek plans on working towards his LCSW.