PROMOTING HEALTH EQUITY THROUGH INTEGRATED CARE: IMPLEMENTING UNIVERSAL DEPRESSION SCREENINGS IN COASTAL FEDERALLY QUALIFIED HEALTH CENTERS

by

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A thesis submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Master of Arts in
Psychology

Charlotte

2020

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ABSTRACT

FALLON JO RICHIE. Promoting health equity through integrated care: Implementing universal depression screenings in coastal federally qualified health centers (under the direction of DRs. JENNIFER LANGHINRICHSEN-ROHLING, AMY PETERMAN, & STEPHANIE POTOCHNICK)

Depression rates in the U.S. continue to rise and create a significant economic burden. Integrating behavioral and mental health into primary care settings is one way to increase depression service delivery including screening, intervention, and follow-up care. Following the 2010 Deepwater Horizon Oil Spill, the Gulf Region Health Outreach Program (GRHOP) was funded with 105 million dollars obtained through a class action lawsuit to build healthcare capacity along the Gulf Coast. Under GRHOP, four Mental and Behavioral Health Capacity Projects (MBHCPs), located in Alabama, Florida, Louisiana, and Mississippi, partnered with 14 Federally Qualified Health Centers (FQHCs) located within the GRHOP footprint to improve healthcare systems and promote integrated behavioral health care. One explicit and shared MBHCP project goal was to increase the rate of depression screenings provided to primary care patients in the targeted FQHCs, as universal screening for depression is a widely accepted marker of behavioral health integration. To determine GRHOP's impact, annual screening rates were retrieved by accessing the Health Resource and Service Administration's (HRSA) publicly available Uniform Data System (UDS) reports. Data from 2014 to 2018 were compiled for depression, cervical cancer, and colorectal cancer screening rates. Size- and state-matched comparison clinics were also selected, and data were retrieved for these clinics as well. Comparisons were made both within clinics (over time) and between clinics (GRHOP vs. control clinics) from 2014 to 2018 using paired samples t-tests and analysis of covariance

(ANCOVA), respectively. As a secondary aim, the degree to which FQHCs within the GRHOP footprint currently include mental and behavioral health in their mission or vision statements on their websites was also examined. Overall, results indicated that GRHOP clinics significantly increased their rates of depression screenings between 2014 and 2018, indicating an increase in integration. However, these findings were also consistent with changes in screening rates occurring in matched comparison clinics that did not receive funding through GRHOP as well as national depression screening trends. Finally, in terms of mission statements, GRHOP and non-GRHOP clinics did not differ in the number of clinics that advertised mental or behavioral health in their online mission or vision statements. Further, the vast majority of both types of clinics (GRHOP and non-GRHOP) currently advertise in-house mental or behavioral health services. These results suggest that numerous FQHCs throughout the U.S. have begun to screen patients for depressive symptoms and provide on-site behavioral health care, demonstrating a large national movement toward integrated care. While MBHCP clinics experienced substantial shifts in the number of patients screened for depression during the GRHOP funding, these gains may have happened regardless. However, given that FQHCs along the Gulf Coast were known to be substantially under-resourced and were continuing to recover from cumulative natural and man-made disasters, it is possible that GRHOP allowed these clinics to keep pace with their counterparts located in more heavily resourced parts of these states (e.g., Florida panhandle versus Miami area; lower Alabama versus Northern Alabama).

ACKNOWLEDGEMENTS

I want to express sincere appreciation to my committee members, Drs. L-R, Peterman, and Potochnick, for their support and input throughout this project. I would like to extend my deepest thanks to Dr. L-R for her genuine encouragement, constructive feedback, investment in community research, insight regarding the Gulf Region Health Outreach Program, and for extending the invitation to join her at UNC Charlotte. I am also immensely grateful for my parents, Tammy and Kevin, who instilled in me the value of lifelong learning. Finally, I want to acknowledge my partner, Colin, who shows me unwavering love and support every day and reminds me to keep pursuing my dreams.

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CHAPTER 1. REVIEW OF THE LITERATURE

In April of 2010, over 200 million gallons of crude oil were released into the Gulf of Mexico after an explosion on a British Petroleum (BP) drilling rig. Following this disaster, now known as the 2010 Deepwater Horizon Oil Spill (DHOS), the U.S. District Court of New Orleans approved the Deepwater Horizon Medical Benefits Class Action Settlement on January 11, 2013 to address the impact of the DHOS on human health. In February of 2014, the settlement became effective; however, some lawsuit-supported activities began in 2012. In an innovative move supported by both sides of the lawsuit, 105 million dollars of the medical settlement was used to establish the Gulf Region Health Outreach Program (GRHOP). GRHOP began meeting and initiating activities in 2012.

The overarching goal of GRHOP was to address the physical, environmental, behavioral, and mental health needs of Gulf Coast residents through building capacity in healthcare systems. GRHOP aimed to build resiliency in the impacted communities and better position the Gulf Coast to rebound from the oil spill as well as to prevent deleterious effects related to future potential disasters. Under GRHOP, different projects were created to address various areas of concern: the Primary Care Capacity Project (PCCP), the Mental and Behavioral Health Capacity Project (MBHCP), the Environmental Health Capacity and Literacy Project, and the Community Health Workers Training Project (Buckner et al, 2017).

The Gulf Coast had experienced a high volume of disasters prior to the oil spill, including hurricanes, tornadoes, and tropical storms; most notably, the Gulf Region sustained damage from Hurricane Katrina in 2005 prior to the DHOS in 2010. The area's

unique vulnerability “has helped define the region’s identity and largely determined its history, its social fabric, and its economy” (Ermus, 2018). Furthermore, research has demonstrated the global, damaging, and cumulative effects of such disasters (Noji, 1996). Thus, the areas impacted by the DHOS were considerably under-resourced and over-taxed at the initiation of GRHOP.

Natural and technological disasters affect population mental health (Green & Solomon, 1995). A study of the effects of the DHOS demonstrated that the individuals most directly exposed to the disaster experienced significantly worse physical and mental health outcomes than those less directly exposed (Fan et al., 2015). Other studies have highlighted the relationship between lost resources following the oil spill and the occurrence of depression, anxiety, and alcohol misuse (Rachmand et al., 2019). Furthermore, in a study of over 800 Alabama residents who resided in counties bordering Mobile Bay and the Gulf of Mexico (and therefore resided in the area most directly impacted), Shenesey and Langhinrichsen-Rohling (2014) reported that residents with lower levels of resilience were more likely to experience greater depressive and post-traumatic stress disorder (PTSD) symptoms, even one year after the disaster. Those who were impacted economically by the oil spill also experienced more depressive and PTSD symptoms (Shenesey & Langhinrichsen-Rohling). Furthermore, for Gulf Coast residents who had also been exposed to Hurricane Katrina, mental health outcomes were negatively impacted by both the oil spill and the hurricane. Specifically, residents who had experienced Hurricane Katrina had higher rates of anxiety, depression, and post-traumatic stress, rendering them even more vulnerable to the effects of the oil spill (Osofsky et al., 2011). Given 1) the Gulf Region’s unique vulnerability to disasters, 2) the

serious impact of such disasters on health outcomes, and 3) that the Gulf Region is characterized by high levels of poverty and under-resourced healthcare systems with HRSA designated shortages in mental and behavioral health providers, the establishment of GRHOP was vital.

Given that one of GRHOP's primary aims was to facilitate the provision of integrated mental and behavioral health care services to under-resourced (and thus, additionally vulnerable to the effects of disaster) residents seeking primary care, the overall Mental and Behavioral Health Capacity Project (MBHCP) was formed. Separate MBHCPs were established in each state (LA, MS, AL, and FL) and operated through four universities: Louisiana State University Health Sciences Center (LSUHSC), the University of Southern Mississippi (USM), the University of South Alabama (USA), and the University of West Florida (UWF). In addition to directly providing services to thousands of residents from the region, the overall MBHCP mission was to build mental and behavioral health capacity in the Gulf Region through sustainable healthcare practices, designed to improve the overall well-being of individuals, families, and communities. In 2012, before the medical settlement was effective, the MBHCPs in all four states began partnering with FQHCs located within the GRHOP footprint. One important aim was to build capacity for the integration of behavioral and mental healthcare within primary care settings (something that had not yet been adopted in many southern states) and create sustainable practices that would last beyond the resolution of GRHOP.

1.1 Integrated Care

Historically, physical and mental/behavioral healthcare have remained largely separate (Goodwin et al., 2017). At best, patients who present at primary care facilities with behavioral health concerns are identified by physicians through evaluation and screening and referred elsewhere, with the expectation that patients will independently follow through to receive care. While this model may be feasible for some patients, the separation of physical and mental/behavioral health care can be a detriment to others. For example, medically underserved, under or uninsured, and low-income patients, who experience more frequent and greater routine barriers to accessing health care to begin with, may have difficulty following-up with mental health care post-referral (Lazar & Davenport, 2018).

Integrated healthcare combines primary care, mental health care, and substance use services into one setting using a team-based approach (Peek, 2013). Integrated care focuses on the wellness of an entire individual by addressing all their health needs (both physical and mental) in one setting. Primary care is designed to provide continuity of care for a variety of medical conditions, as well as serve as the first point of contact for people with undiagnosed medical concerns. In this way, primary care is the first stop for both healthy and ill individuals and is the ideal point of access for mental and behavioral healthcare screening, prevention, and initial intervention services. While primary care should not be thought of as the only source of mental and behavioral healthcare, since there are specialized mental health clinics, integrated primary care can address mental and behavioral health care in many routine patients, especially through conducting regular screenings and brief, same day interventions (Christian et al., 2018).

1.2 Models of Integrated Care

Integrated care can be thought of as a continuum ranging from physical and mental/behavioral health care occurring in separate locations with separate systems, to having fully coordinated care, which includes provider communication and joint electronic health records (EHRs; National Institute of Mental Health, 2017). In 1996, Doherty and colleagues first proposed a model for integrated care that was classified into five primary tiers (see Table 1). At Tier 1, mental/behavioral health care and primary care are in separate locations and rarely communicate. At Tier 2, basic collaboration facilitates periodic communication, in which providers at each location think of and use the other as a resource. At Tier 3, locations are shared, and in-person meetings are somewhat regular. At Tier 4, services share a site, treatment plans are coordinated among providers, and health records may be shared. Finally, at Tier 5, providers share a site and records, work on the same team to develop a full understanding of a patient, and routinely utilize each other's expertise and professional role. In this fully integrated care setting, behavioral health providers are part of the medical team and are available for consultation and to provide assessment, brief interventions, and individual therapy to patients. Many of these services occur on the same day that the patient has a health care appointment. Integrated care practitioners provide an in-depth, behavioral health perspective, which contributes to a deeper understanding of a patient's broader health and wellness.

Table 1. Levels of healthcare integration according to Doherty and colleagues (1996)

Level of Integration	Model	Attributes
1	Separate space & mission	Behavioral health is specialty
2	One-on-one referral relationship	PCPs have preferred providers and may exchange some information
3	Co-located services	On-site behavioral health unit/separate team
4	Collaborative care	On-site behavioral healthcare; cases are shared with behavioral health specialist
5	Fully integrated care	Behavioral health provider is a part of the primary care team

The Substance Abuse and Mental Health Services Administration (SAMHSA)-Health Resources and Services Administration (HRSA) Center for Integrated Health Solutions (CIHS) adapted Doherty and colleagues' (1996) model by distinguishing among coordination, co-location, and integration (which were the levels of integrated care proposed by Blount, 2003). The SAMHSA-HRSA CIHS model is made up of three key elements—communication, physical proximity, and practice change, which comprise the three levels of coordination, co-location, and integration, and contain six levels altogether (Heath et al., 2013; see Table 2).

Table 2. Integrated care model according to the SAMHSA-HRSA CIHS model (Heath at al., 2013)

Coordinated Key Element: Communication		**Co-located** Key Element: Physical Proximity		**Integrated** Key Element: Practice Change	
Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**
Minimal collaboration	Basic Collaboration at a Distance	Basic Collaboration Onsite	Close Collaboration Onsite with Some System Integration	Close Collaboration Approaching an Integrated Practice	Full Collaboration in a Transformed/ Merged Integrated Practice

Ultimately, while integrated care models vary, a fully integrated healthcare system includes service co-location, provider communication, and the integration of behavioral health care providers and services into primary care settings.

1.3 Enacting Integrated Care: The Triple E Model

In theory, integrated care systems address patient needs in a way that is efficient from the health system's perspective. Yet, given the long-standing tradition of separate care, forming a fully integrated care system is challenging and costly. Langhinrichsen-Rohling and colleagues (2015) proposed a three-part "Triple E Model" which addresses the steps necessary to enact an integrated healthcare model (see Figure 1). The three "Es" stand for *engaging* healthcare administrative leadership and providers in the change effort, *establishing* integrated care services, and *embedding* integrated care into existing primary care systems to promote sustainability.

First, engagement requires leadership buy-in, which in the case of the MBHCPs, happened through an assessment of integration as well as through identifying engaged physicians and other key stakeholders, or "champions," who could facilitate broader engagement of other providers and staff within a healthcare setting. Further engagement included getting input from healthcare providers about perceived needs of patients and understanding the unique needs and mandates of FQHCs. In the context of the present study, engaging healthcare systems began soon after the Deepwater Horizon Oil Spill in 2010, even before the medical settlement was established and GRHOP became effective. Though not completed as part of GRHOP, research suggests that to engage healthcare systems in integrated care practices, assessing an organization's readiness for integrated care may be beneficial because assessing readiness can help leaders determine whether

there are gaps, for example, in terms of motivation or general capacity (e.g., staff, resources, knowledge). Scott and colleagues (2017) developed and implemented the Readiness for Integrated Care Questionnaire (RICQ), which is made up of 82 questions, in 11 healthcare clinics. Results from these clinics demonstrated that the RICQ is an effective tool for identifying strengths and weaknesses of organizations in terms of readiness and capacity to embody integrated care (Scott et al., 2017). Similarly, Langhinrichsen-Rohling and Wornell (2014) used a modification of the SAMHSA model to assess GRHOP clinics' readiness to adopt integrated care in the early stages of GRHOP. Thus, in future endeavors to engage health care leaders and administrators, identifying readiness for integrated care using a measure like the RICQ may be beneficial for optimizing integration efforts. Ultimately, engaging systems, which requires assessment to some degree, is a first crucial step for enacting integrated care and preparing systems for change.

Once systems are invested in becoming integrated, establishing services is the next step for forming an integrated practice. Specifically, establishing services in the context of GRHOP included hiring behavioral health providers (BHPs) and integrating them into the clinic workflow (e.g., warm hand-offs, referrals), establishing buy-in from providers to support the services being offered by the BHPs, choosing screening tools (e.g., PHQ-9, PHQ-2) and procedures, writing crisis and suicide risk assessment policies, and establishing clinical training and ongoing supervision for BHPs.

Finally, embedding integrated care into primary care systems includes standardizing behavioral health practices and procedures, merging electronic health records, determining billing procedures, and including behavioral health practice into

organizational mission and vision statements. Embedding is crucial for practices to become sustainable and feasible in the long-term. Simply having BHPs present and integrating them into the workflow is not enough to ensure that practices will become efficient, well-utilized, financially sustainable, and quality enhancing for the patient. Finally, embedding integrated care into primary care settings requires a paradigm shift as it prioritizes the mind-body connection and adopts it as central to medical practice, which is fitting given that physical health and mental health are known to be connected (Littrell, 2008).

Overall, enacting behavioral health practices in primary care in order to build a viable, fully integrated system can take time. Ultimately, these three Es—engage, establish, and embed—provide a useful and practical framework for building a sustainable integrated care system (Langhinrichsen-Rohling et al., 2015). As depicted in Figure 1 below, these three phases lasted for different periods of time, with the establishing phase having the longest duration.

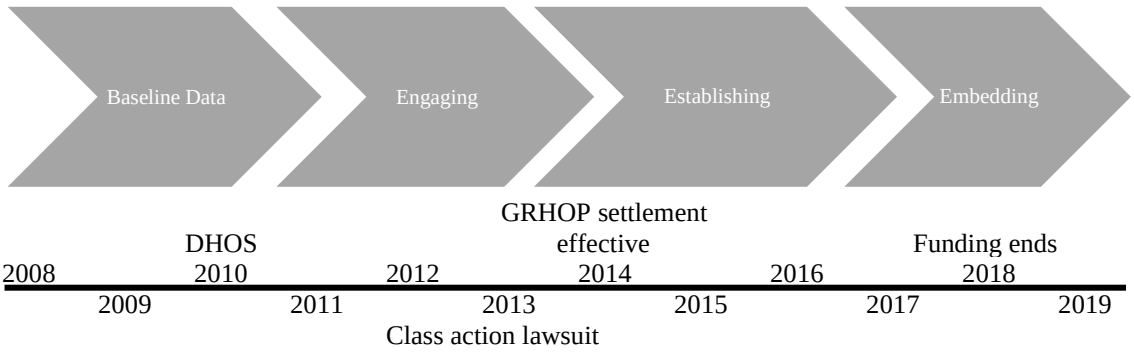


Figure 1. Timeline of enacting integrated care model in the context of GRHOP, according to the Triple E Model (Langhinrichsen-Rohling et al., 2013)

1.4 Health Equity Through Integrated Care

Integrated care systems make mental health care easier to access and more streamlined (Zeiss & Karlin, 2008). Thus, integrated care systems are imperative for promoting health equity. For patients with adequate resources (e.g., transportation, insurance, etc.), seeking out mental health care independently or following a referral from a primary care provider may be feasible. On the other hand, for low-income patients with limited resources, accessing mental health care may pose additional challenges. Research suggests that logistical barriers to seeking care include costs, transportation, childcare, low health literacy, and shift work schedules being incompatible with clinic hours (Santiago et al., 2013).

Another barrier to mental health care for individuals with low socio-economic status (SES) may be perceived stigma. Individuals with low-income perceive greater stigma in terms of mental health concerns compared to higher income individuals and may be more reluctant to seek out distinct mental health care (Seervai & Lewis, 2018). Despite increased access to care in light of recent policies and public health initiatives (e.g., the Affordable Care Act), there are other factors that may keep certain patients from accessing care. In a mixed-methods study of over 500 low-income adults (Allen et al., 2014), nearly one-fifth reported at least one stigmatizing healthcare experience that was perceived to be a result of insurance status or stereotypes about poverty. This type of stigma is considered internalized, in that it may not be directly experienced, yet individuals "may carry it into the health care setting when they apply negative stereotypes of a stigmatized identity to themselves" (p. 292). Thus, individuals with low SES may perceive stigma from healthcare providers (and potentially experience

discrimination as well), which may prevent them from accessing health care. In fact, Allen and colleagues (2014) found that patients who perceived stigma were more likely to report unmet medical and mental health needs and a lower quality of care when compared with patients who did not perceive stigma.

One way that integrated care systems address these barriers is by providing patients with mental health care resources within the primary care setting. Primary care providers who work in integrated care settings can raise the subject of mental health using screening tools and, if indicated, warmly hand-off the patient to a behavioral health professional during the same day and in the same building. In theory, this warm hand-off may help to build trust between the patient and behavioral health provider, increasing the likelihood of following through with services. Interestingly though, in a retrospective study of over 2,500 primary care patients, results demonstrated that length of time between the referral and the date of the appointment was the greatest predictor of a patient attending their initial behavioral health appointment. Those who experienced a warm hand-off from their physician were not more likely to attend their initial appointment; however, having the behavioral health appointment scheduled in the same day best predicted attending the appointment (Pace et al., 2018). While these findings do not necessarily suggest that the warm hand-off in and of itself impacts outcomes, same day appointments, which are often a consequence of warm-hand offs, may facilitate the utilization of behavioral health services. Thus, in order to increase mental health service utilization among low-income individuals, integrated care systems may provide a less stigmatizing and more discreet setting as well as better facilitate same-day appointments.

1.5 Integrated Care for Underserved Populations in Federally Qualified Health Centers

Integrated care is particularly important for the wellness of individuals who access Federally Qualified Health Centers (FQHCs). FQHCs, by definition, are located in communities that have been deemed medically underserved. FQHCs provide preventative and intervention care, adjust fees based on patients' ability to pay, and are governed by the Health Resources and Services Administration's (HRSA) Health Center Program (HRSA, 2018). FQHCs serve one in twelve Americans and FQHC patient demographics often include high rates of minority racial groups, young, low-income, uninsured, and homeless individuals (NACHC, 2019). Furthermore, FQHCs are more likely to serve patients with unmet mental health needs relative to the general population (Nath et al., 2016; Proser & Cox, 2004). Despite this seemingly high need for mental health services, barriers to providing integrated care are prevalent in FQHCs. Specifically, resources in FQHCs are typically even less than resources available in clinics that are primarily funded through private insurance companies; for this reason, there is very little incentive for physicians to spend extra time on mental health screenings, especially in the face of other health care priorities (Russell, 2010). Primary care physicians in FQHCs might also be expected to perform screenings and follow-up care in the absence of a behavioral health support specialist, which largely discourages screenings (Kaliebe, 2016). Ultimately, FQHCs are more likely than other health clinics to lack the infrastructure needed to support mental and behavioral health needs, despite the greater likelihood that their patients will have unaddressed mental health concerns (Sareen et al., 2011).

Predictably, in states that did not approve Medicaid expansion, which included a disproportionate amount of the southern states including South Carolina, Florida,

Georgia, Alabama, Mississippi, Oklahoma, and Texas (Kaiser Family Foundation, 2018), FQHCs experienced significant setbacks compared with FQHCs in states that did expand Medicaid under the Patient Protection and Affordable Care Act (ACA). The lack of expansion created a coverage gap affecting individuals who did not meet the eligibility requirements for Medicaid and who also could not afford private insurance. This unique conundrum leaves patients who fall in that coverage gap in dire straits in terms of health care utilization. In fact, patients who accessed FQHCs in non-Medicaid expansion states reported decreases in preventive care utilization (e.g., flu shots, dental exams) compared with FQHC patients in other Medicaid-expansion states (Rosenbaum et al., 2018). It is likely that patients who did not access preventative care services in non-expansion states also may not have utilized mental health care services, given cost barriers. Thus, GRHOP's role in positioning FQHCs to build capacity for mental and behavioral health services in multiple southern states is vital given the recent political and economic climate surrounding healthcare.

1.6 Integrated Care Outcomes

Theoretically, integrated care systems address patient mental health needs in a more efficient and equitable manner through recognizing and responding to mental health concerns within a patient-centered, holistic context (Satcher & Rachel, 2016). Integrated care systems may also serve as a "one-stop shop" for health needs, ensuring that everyone accessing health care also receives mental health services such as screening, intervention, and follow-up as needed (Scott et al., 2017). Research also suggests that, in practice, integrated care improves global outcomes. For example, Balasubramanian and colleagues (2017) studied 475 patients in five community health practice settings that had

adopted integrated care and found that patients reported statistically significant reductions in depression symptoms and that integrated practices improved patient experiences of care. While not based on an experimental design, this research suggests that depression treatment within primary care community clinics can be efficacious. Additionally, in a study of over 160,000 patients engaged in either traditional healthcare settings or integrated team-based care, patients receiving care in settings with integrated care (as measured by Components of Team-Based Care Practices according to the National Committee for Quality Assurance; Reiss-Brennan et al., 2016) were shown to utilize acute care resources (e.g., hospitals) less often and reported higher quality of care compared with patients treated in traditional settings. Furthermore, and of interest from a public health perspective, the integrated team-based care approach was found to be more cost-effective (Reiss-Brennan et al., 2016). Specifically, compared with usual care, patients who received care in integrated, team-based practices presented fewer times at the emergency department, were admitted to the hospital less often, and had fewer appointments with their primary care physician. However, while the cost of care was less in the integrated care settings compared with traditional practices, the cost of implementation still exceeded the overall reduction in cost. These findings suggest that the return on investment may take time to be realized (Reiss-Brennan et al., 2016).

Hedrick and colleagues (2003) also found that a collaborative care approach to depression treatment within the Veterans Affairs (VA) primary care setting led to faster and more sustainable patient improvements compared to the standard, non-collaborative treatment model. Further, Thota and colleagues (2012) analyzed 32 studies of collaborative care models conducted between 2004 and 2009. The majority of the studies

were randomized controlled trials (RCTs) in which patients were assigned to traditional treatment or collaborative care. These studies examined a wide range of outcomes including improvements in depression symptoms, adherence to treatment, remission rates, quality of life, and satisfaction with care. Overall, Thota and colleagues (2012) found that patients' depression symptoms, adherence to treatment, response to treatment, remission rates at 12 months, and satisfaction with care within integrated care systems all meaningfully improved (reached public health significance according to the Community Preventive Services Task Force) compared with patients who received traditional, non-collaborative treatments (treatment as usual).

1.7 Measuring Integrated Care

As described previously, integrated care exists on a continuum. Researchers have proposed several ways to measure the degree to which a healthcare setting is integrated. One such way is through measuring whether an action, such as screening for depression or substance use, has occurred and for how many patients (Robinson & Reiter, 2007). Implementing screening practices for both physical health (e.g., colorectal cancer) and mental health conditions (e.g., depression) leads to an increased detection of risk (Bajracharya et al., 2016) and thus, increases the likelihood of treatment. Other measures of behavioral health that have been recommended include whether patients were able to access behavioral health services "right away" if they needed them (Palmer et al., 2006). Furthermore, utilization of staff is also a sign of integration. For example, the number of mental/behavioral health professionals in any given primary care clinic may be another appropriate measure of behavioral health integration. In a 2017 pilot study of integrative health care in primary care clinics, researchers found that embedding a mental health

consultant into the primary care team was one key to successful integration and allowed for lower overall costs, lower utilization of specialists, and fewer hospital visits by patients (Budde et al., 2017).

1.8 Depression Screenings and Healthcare Integration

Between 2006 and 2008, the Centers for Disease Control and Prevention (CDC) estimated that 9% of the U.S. population met criteria for current depression (CDC, 2010). Rates of depression continue to increase (World Health Organization, 2017), making early detection and intervention critical public health concerns. The World Health Organization (WHO; 2001) reported that by the year 2020, depression will be the second most devastating illness in terms of disability and disease burden, only after heart disease. Depression's impacts in the U.S. are thought to cost upwards of 200 billion dollars per year in total economic burden resulting from inpatient and outpatient services, medication costs, missed work, and lower work productivity (Greenberg et al., 2015.). Healthy People 2020, which provides 10-year national objectives for improving health, and was launched in 2010, named "increase depression screening by primary care providers" (MHMD-11), and "increase the proportion of primary care facilities that provide mental health treatment onsite or by paid referral" (MHMD-5) as objectives (Office of Disease Prevention and Health Promotion, 2010). Thus, finding ways to effectively detect and treat depression is vital to individuals, families, communities, and society at large and has been nationally recognized as a need.

Despite depression's profound impact and the known efficacy of both psychological and pharmacological treatments for depression, (Hollon et al., 2002), many adults remain untreated. Healthcare researchers have long theorized about the reasons for

the underutilization of mental health care resources. One reason for the lack of treatment may be that many adults do not seek out specialized mental health care and are also not routinely screened for depression by their primary care providers; therefore, their illness may go unnoticed and untreated. The integration of mental health care into primary care settings may increase access to mental health care, improve outcomes, and lower overall health costs (Funk et al., 2008) by providing early detection and streamlined treatment, particularly for depression. Screening for mild to moderate changes in mood may be especially well suited for primary care settings, given that early detection may serve to prevent the onset of worsening or more severe symptoms. In a meta-analysis of two systematic reviews and 15 RCTs of psychotherapy for depression, Nieuwsma and colleagues (2012) found that brief cognitive behavioral and problem-solving therapies lasting between six and eight sessions were effective (relative to control) in reducing patients' symptoms of depression (d = -.42; moderate effect size). These findings suggest that even brief interventions, which could be performed in the context of primary care, may be effective for improving patient experiences with mental health symptoms.

Primary care may also be a crucial setting for detecting suicidality. Ahmedani and colleagues (2014) conducted a study of patient suicides in eight health systems across the U.S. and found that between the years 2000 and 2010, nearly 6,000 patients died by suicide. Of those, nearly 50% attended a healthcare appointment in the month leading up to their death. In the year prior to their deaths, 64% (3,780) of patients attended primary care visits without receiving a mental health diagnosis. These results demonstrate that many individuals who die by suicide present for medical care in the year, or even the month, leading up to their deaths, yet may not be adequately screened for mental health

concerns and thus, not treated. This research highlights the need for mental health, particularly suicidality, to be addressed in primary care settings.

Detecting depression and other mental health concerns is vital, and fortunately, detection through screening can be quick, relatively accessible, and low-cost, making it suitable for primary care settings. Well known depression screening tools, such as the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), along with the two-item version, the PHQ-2 (Kroenke et al., 2003), have been validated for use in primary care settings. In a study of nearly 3,000 patients, the PHQ-9 was completed, followed by a diagnostic interview. The PHQ-9 had good sensitivity and specificity in this study (.82, .85, respectively, using a score of 8 or more as a threshold). On the other hand, the PHQ-2 (taken from the first two questions of the PHQ-9) performed only modestly in terms of specificity (.78 using a threshold score of 2 or more) indicating an increased risk for falsely identifying healthy patients as depressed. In terms of sensitivity, the PHQ-2 was found to correctly identify 86% of patients with major depressive disorder (Arroll et al., 2010). Screening tools such as the PHQ-9 and PHQ-2 are quick and require little to no training to administer, as they are self-report. In a study of outpatient adolescent patients attending routine physical wellness appointments, brief screening tools were found to be useful and acceptable among physicians, parents, and adolescent patients (Zuckerbrot, et al., 2007). Importantly, the PHQ-9 also includes a question about suicidality, which may help health care providers become more aware of severe patient suffering by routinely evaluating patients using the PHQ-9 to address suicidal ideation.

Although there is some controversy regarding whether or not screening for depression is advantageous in identifying individuals who would not have been detected

otherwise (Bland & Streiner, 2013; O'Connor et al., 2009; Thomas et al., 2012), in 2002, depression screenings were nationally recommended for everyone aged 12 and older by the United States Preventive Services Task Force (USPTF; Sui & USPSTF, 2016). Importantly, the USPTF only recommends screening for depression when there are "adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up" (USPTF, 2016), which may help to explain why some health systems do not provide universal depression screenings. In a qualitative study of 24 primary care physicians, reported barriers included physician discomfort or lack of knowledge surrounding mental health issues, a lack of time and competing responsibilities in the context of primary care, and a fragmented mental health system in which directing patients to mental health services is difficult due to a range of issues including long wait times to appointments and poor coordination between primary care physicians and specialists (Henke et al., 2008). Importantly, the USPTF recommended that screenings should take place *only* in contexts where resources are available (Thomas et al., 2012). Health care providers trained in mental health play a crucial role in providing those resources. As of 2015, psychiatry was one of the only medical specialties experiencing a shortage of physicians (IHS, 2015). Due to a lack of mental health care infrastructure, many health centers may also lack personnel who are familiar with depression screening tools and procedures for screening and follow-up care. This barrier may contribute to the fact that many health systems have not yet complied with the national screening guidelines. In fact, in a study conducted between 2012 and 2013 of over 33,000 outpatient primary care physicians in the U.S., only 4.2% reported routinely screening for depression (Akincigil & Matthews, 2017).

To fully integrate mental health into primary care settings, health systems may require far more than the implementation of a self-report screening questionnaire. Specifically, health systems may need employees trained in mental health, procedures for tracking screenings, support in choosing and scoring depression assessment devices, help facilitating electronic health records that track mental health, assistance creating formal referral practices, and protocol and policies for crisis intervention (in the event of disclosed suicidality). In other words, health care settings need integration. Without the proper personnel, training, and resources, it is not advised that clinics implement universal depression screenings for their primary care patients (Thomas et al., 2012), and this may be especially true for health systems that lack adequate funding or who are not reimbursed for mental health services, such as FQHCs.

Additionally, fully integrated care, in which patients can access specific mental health services directly from primary care providers has been shown to lead to better access and mental health outcomes (Hedrick et al., 2003; Katon et al., 2002). A study of over 36,000 primary care patients who received depression screenings in the VA demonstrated that patients who received services the same day as their screening (compared with patients who received services within 12 weeks of their screening) were more likely to engage in treatment (e.g., beginning psychotherapy or taking antidepressant medications; Szymanski et al., 2013), suggesting the importance of timely care. Another study of older adults receiving services from the VA demonstrated that integrated care (compared to referrals) resulted in greater patient satisfaction and was inversely related to perceived mental health stigma (Chen et al., 2006). Furthermore, results from a study conducted across the United States, Ontario, and the Netherlands

suggest that only low-income individuals in the United States (compared to the other locations) reported financial barriers as a reason for not seeking treatment services (Jagdeo et al., 2007), suggesting that access via integrated care might improve accessibility. Taken together, these studies demonstrate that integrated care is critical for promoting positive outcomes.

CHAPTER 2: RESEARCH AIMS AND HYPOTHESES

GRHOP was established to build healthcare capacity and resilience in the Gulf Region following the 2010 Deepwater Horizon Oil Spill. It utilized a unique opportunity and funding from a class action lawsuit to address system-level deficits in community health and facilitate progress towards integrated care. Evaluating whether GRHOP efforts successfully helped facilitate integrated care in underserved FQHCs is critical and acts as a model for addressing health needs in the context of, and with the resources from, a class action lawsuit. In particular, recent opioid prescription lawsuits may follow the precedent set by GRHOP in terms of utilizing resources to facilitate integrated, patient-centered care (Beitsch & Langhinrichsen-Rohling, 2019).

The present study has two primary aims: 1) to evaluate the impact of GRHOP by assessing year by year depression screening rates for FQHCs within the GRHOP-footprint as well as outside of the Gulf Region, and 2) to evaluate whether depression screening rates increased more than other preventative screening measures (e.g., cervical cancer and colorectal cancer screenings) since depression screenings were the focus of MBHCP efforts. As a secondary aim, the degree to which behavioral health has been integrated into clinic vision or mission statements on FQHC websites was also examined. I propose the following hypotheses: 1) GRHOP FQHCs will report significant increases in depression screenings between 2014 and 2018, 2) FQHCs in GRHOP's footprint will report larger increases in depression screenings compared to non-GRHOP FQHCs, 3) GRHOP FQHCS will increase depressions screenings more than cervical cancer or colorectal cancer screenings, and 4) GRHOP FQHCS will include mental or behavioral health in their mission or vision statements more than control FQHCs in 2020.

CHAPTER 3: METHODS

3.1 Participants

Fourteen FQHCs along the Gulf Coast in Louisiana (*n* = 7), Mississippi (*n* = 1), Alabama (*n* = 3), and Florida (*n* = 3) fell within GRHOP's footprint. These 14 FQHCs make up the GRHOP FQHCs in this study. In addition, 14 state- and size-matched FQHCs (+/- 3 clinics) were chosen to serve as control comparisons; these FQHCs did not receive support from GRHOP or the MBHCPs (Figure 2).

Figure 2. Circles represent coastal FQHCs within GRHOP's footprint who received support from MBHCPs. Stars represent the state- and size-matched FQHCs for comparison. Clinic specifics (e.g., size, location) can be found in the Appendix.

3.2 Procedures

Using funds provided though the GRHOP settlement, the MBHCPs provided resources and individualized support to Gulf Coast FQHCs. Support varied by FQHC, but all clinics had access to the Regional Care Collaborative (part of GRHOP's Primary Care Capacity Project), which held quarterly webinars as well as annual multi-day forums designed to provide opportunities for healthcare professionals and administrators to learn from and collaborate with integrated healthcare experts. Specific services offered by the MBHCPs in some FQHCs included assistance choosing mental health screening and assessment devices, training staff and/or clinicians to administer and score assessments,

introducing providers to screening documentation procedures, facilitating the development of suicide risk assessment procedures, and determining rules for referral outside the clinic. Some clinics also hired mental health providers who were paid for with MBHCP funds.

To create a comparison group, 14 state- and size-matched, non-coastal FQHCs were identified. Clinics were matched based on number of health providing locations (+/- three, or the closest possible match). For example, if one coastal FQHC in Louisiana has 12 locations, a non-coastal FQHC was identified in Louisiana that had between 9 and 15 clinics. The state- and size-matched clinics can be found in the Appendix.

Once all 14 matched, non-coastal FQHCs were identified, depression, cervical cancer, and colorectal cancer screenings rates were retrieved through the Uniform Data System (UDS) provided online by the Health Resources and Services and Administration (HRSA) for all 28 FQHCs. UDS provides clinic level data including the percentages of patients screened for depression, cervical cancer, and colorectal cancer. The UDS typically publishes the three previous years' data on the website. For the years that were not available, I contacted UDS and HRSA to request the data. Overall, I gathered data for years 2014 to 2018 for the outcomes of depression, cervical cancer, and colorectal cancer screenings at all FQHCS in the United States. When available, 2019 data were also collected.

CHAPTER 4: ANALYTIC PLAN

Data were obtained for years in which they were available. FQHCs were not required to report screening rates for depression until 2014 or colorectal cancer until 2012. Thus, only data from 2014 onward was utilized for the outcome variables: depression, cervical cancer, and colorectal cancer screenings.

The first aim of this study was to determine whether GRHOP-supported FQHCs increased rates of depression screenings. This study utilized a paired samples t-test to determine if there were statistically significant differences in screening rates between 2014 and 2018 in GRHOP clinics.

The second aim of the study was to test whether GRHOP-supported FQHCs increased their depression screening rates at disproportionately higher rates than the state- and sized-match control FQHCs. To test this, analysis of covariance (ANCOVA) tests were used to compare screening rates in 2018 between groups (GRHOP vs. control) while holding 2014 screening rates constant. Linear regression was also used to analyze group by time interactions.

The third aim was to test whether GRHOP FQHCs would report greater increases in depression screenings compared with cervical and colorectal cancer screenings. ANCOVA tests were utilized and outcome variables (depression, cervical cancer, and colorectal cancer screenings rates) were compared at the beginning of GRHOP (2014) to the end (2018) to determine whether screening rates changed between the two periods.

CHAPTER 5: RESULTS

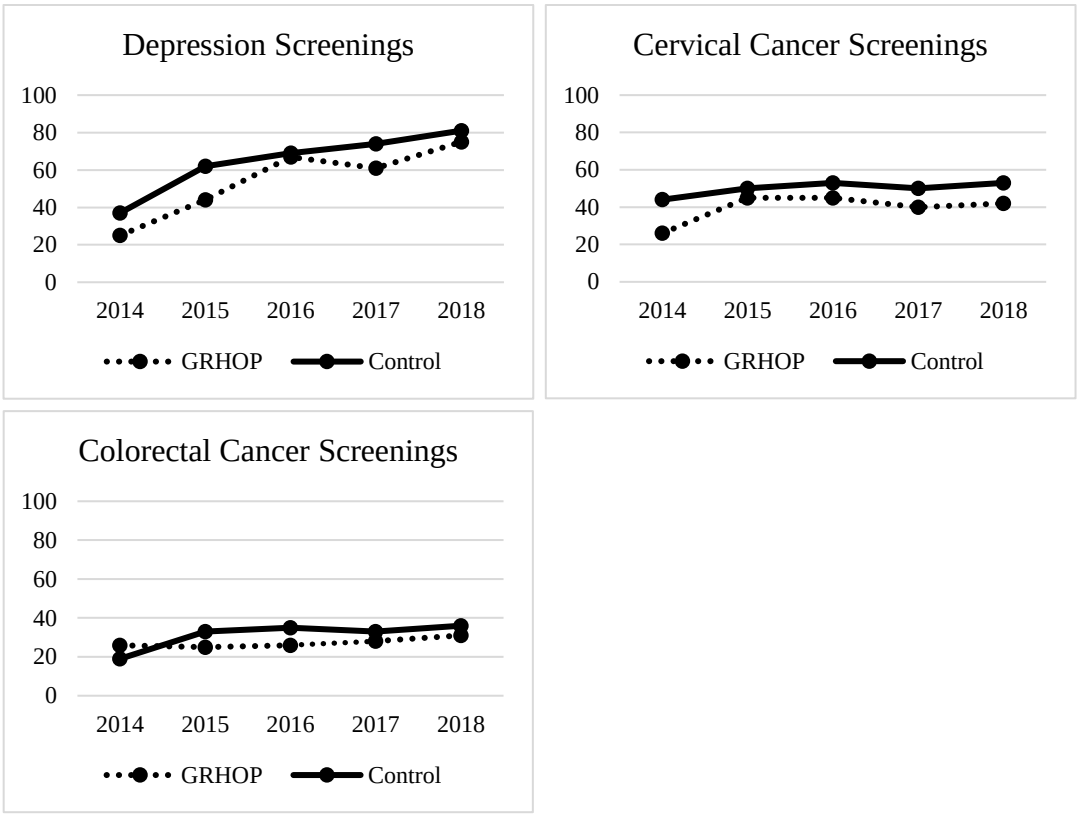
Depression, cervical cancer, and colorectal cancer screening rates were retrieved from the Health Resources and Services Administration (HRSA) Uniform Data System (UDS). FQHCs were required to report colorectal cancer screening rates beginning in 2012 and depression screening rates beginning in 2014; therefore, data prior to those dates were unavailable. Altogether, data from 116 FQHCs were retrieved. There were 15 FQHCs in Alabama, 20 in Mississippi, 34 in Louisiana, and 47 in Florida. A total of 14 clinics were within GRHOP's footprint and another 14 were used as size- and state-matched controls (See the Appendix for detailed list of FQHCs). Thus, data from 28 clinics were analyzed in this study.

5.1 Screening Rates for GRHOP Clinics vs. Non-GRHOP Clinics

For depression screenings, GRHOP FQHCs screened 25% of patients in 2014, 44% of patients in 2015, 67% in 2016, 61% in 2017, and 75% in 2018. For size- and state-matched non-GRHOP clinics, 37% of patients were screened in 2014, 62% in 2015, 69% in 2016, 74% in 2017, and 81% in 2018. These rates are shown in Figure 3.

For cervical cancer screenings, GRHOP FQHCs screened, on average, 49% of patients in 2014, 46% in 2015, 45% in 2016, 40% in 2017, and 42% in 2018. For size- and state-matched non-GRHOP FQHCS, 44% of patients were screened in 2014, 50% in 2015, 53% in 2016, 51% in 2017, and 53% in 2018. Figure 4 illustrates these screenings.

For colorectal cancer screenings, GRHOP FQHCs screened 26% of patients in 2014, 25% in 2015, 26% in 2016, 28% in 2017, and 31% in 2018. For size- and state-matched non-GRHOP clinics, 19% of patients were screened in 2014, 33% in 2015, 35% in 2016, 33% in 2017, and 36% in 2018. Figure 5 illustrates these comparisons.



Figures 3-5. Percentages of depression, cervical cancer, and colorectal cancer screening rates from 2014 to 2018 for GRHOP-supported and size- and state-matched non-GRHOP FQHCs.

5.2 Paired Samples

For the GRHOP-supported FQHCs, paired samples t-tests demonstrated that neither cervical cancer screening rates nor colorectal cancer screening rates statistically significantly increased from 2014 to 2018 (t=.76, p=.46 and t=-.77, p=.46, respectively). However, for the depression screenings rates, results indicated that there was a statistically significant difference between 2014 and 2018, t=-5.84, p<.001. On average, FQHCs receiving GRHOP support significantly increased rates of depression screenings from 25% in 2014 to 74% in 2018.

For non-GRHOP FQHCs, cervical cancer screening rates did not significantly change from 2014 to 2018, t=-2.01, p=.07. Colorectal cancer screenings rates increased significantly from 2014 to 2018, t=-4.52, p=.001, and increased on average from 19% in 2014 to 36% in 2018. For depression screenings in non-GRHOP FQHCs, rates also significantly increased from an average of 37% in 2014 to 81% in 2018, t=-5.26, p<.001.

5.3 Analysis of Covariance and Regression

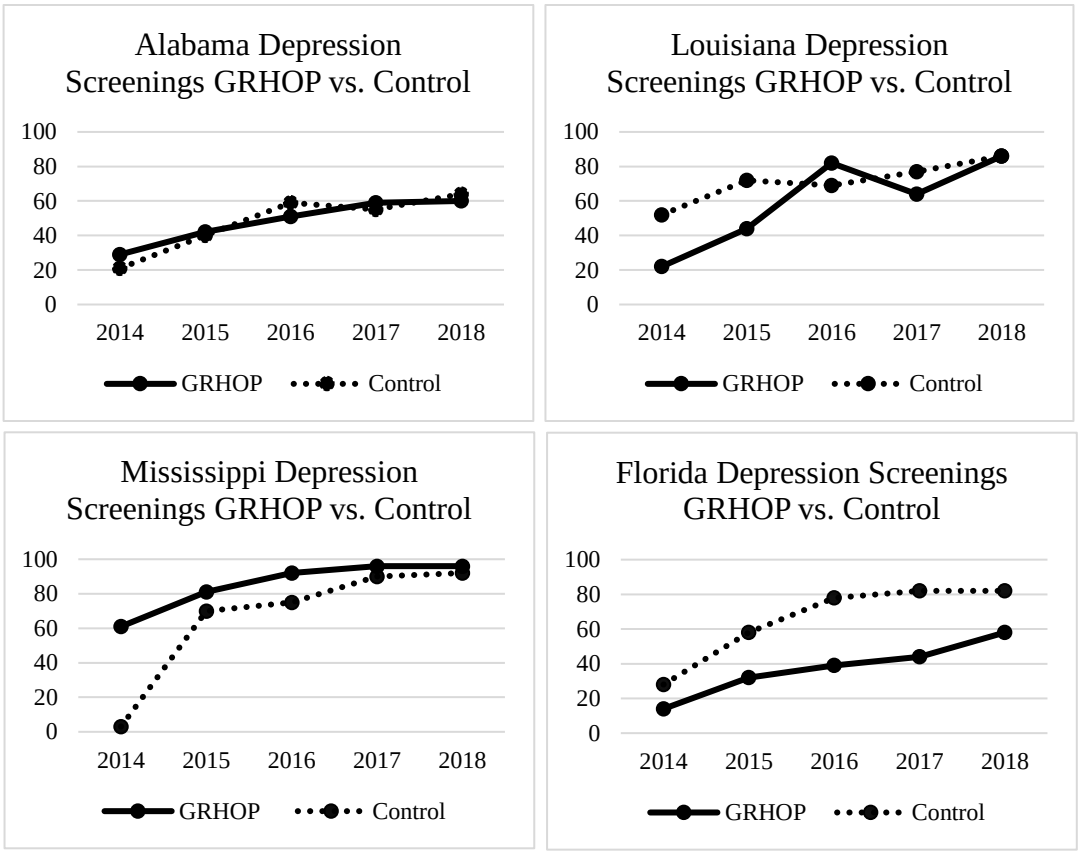
Due to the limited number of years for which data were available, analysis of covariance (ANCOVA) tests were used to determine whether rates of screenings in 2018 (at the end of GRHOP) differed between groups, controlling for baseline rates in 2014 (at the beginning of GRHOP). For cervical cancer screenings rates, there was no significant effect of GRHOP vs. non-GRHOP clinic screenings rates in 2018, after controlling for baseline cervical cancer screening rates, F(1, 23) =2.6, p=.12. For colorectal cancer screening rates, there was no significant effect of GRHOP vs. non-GRHOP clinic screenings rates in 2018, after controlling for baseline colorectal cancer screening rates, F(1, 23) =1.1, p=.30. Finally, for depression screenings, there was also no significant effect of GRHOP vs. non-GRHOP clinics screenings rates in 2018, after controlling for baseline depression screening rates, F(1, 23) =.53, p=.48.

To test whether there were group (GRHOP vs. non-GRHOP) by time (year) interactions with depression screening rates as an outcome, linear regression was utilized. Results were consistent with patterns found in the ANCOVA. Specifically, depression screening rates for GRHOP FQHCS were not statistically significantly different from control clinics, nor was the effect of time unique to the GRHOP clinics. While rates of screenings did increase across time for control and GRHOP-supported clinics, the

interaction was not significant. Similar analyses were conducted for cervical cancer and colorectal cancer screenings. There was no significant effect of group, time, or an interaction on these outcomes.

5.4 Four State Comparisons

To determine whether screening rates at GRHOP clinics significantly differed from their state averages, one-sample t-tests were utilized. In Alabama as a whole in 2018, the depression screening rate was 73% and GRHOP clinics averaged 60%, which was not a statistically significantly difference $t(2)=-.89$, $p=.47$. In Florida as a whole in 2018, the depression screening rate was 75% and GRHOP clinics in Florida averaged 58%, which was not a statistically significantly difference, $t(2)=-1.88$, $p=.20$. In Louisiana as a whole in 2018, the depression screening rate was 77% and Louisiana GRHOP clinics averaged 86%, which was not statistically significantly different, $t(6)=1.41$, $p=.21$. Finally, in Mississippi in 2018, the depression screening rate was 70% and the GRHOP clinic in Mississippi screened for depression at a rate of 95%. This difference could not be computed because there was only one GRHOP clinic in Mississippi. Altogether, the results from the state comparisons demonstrate that GRHOP depression screening rates did not differ significantly from the respective state averages. Figures 6-9 illustrate the depression screening rates in GRHOP clinics compared with the state- and size-matched control clinics.

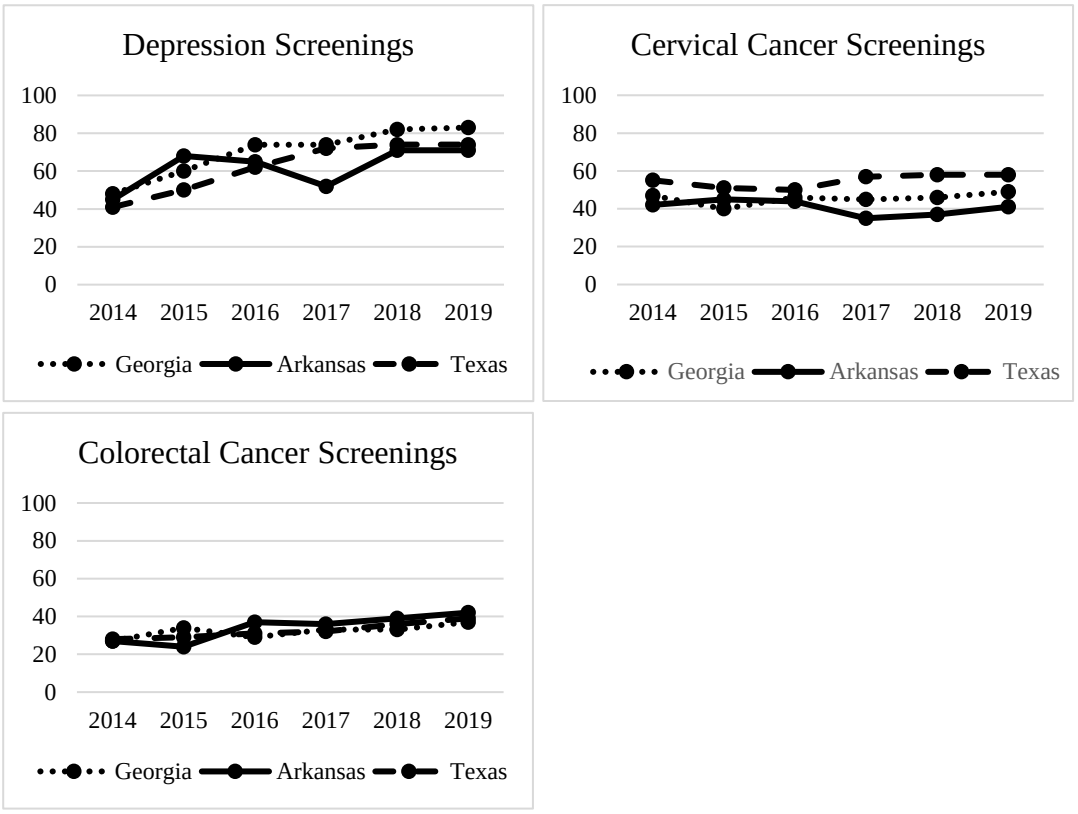


Figures 6-9. Percentages of depression screenings performed in GRHOP vs. state- and size-matched control clinics between 2014 and 2018.

5.5 Analysis of Clinics in Neighboring States

Analyses were also conducted to test whether neighboring states' screening rates changed between 2014 and 2018. This was meant to serve as a broader comparison to illustrate trends outside of the Gulf Region and Gulf Coast states. Paired samples t-tests were conducted for depression, cervical cancer and colorectal cancer screening rates between 2014 and 2018 in Georgia, Arkansas, and Texas. Screenings rates between 2014 and 2018 are shown in Figures 10-12. Paired samples t-tests demonstrated similar trends to the non-GRHOP clinics in the Gulf Region in that there were statistically significant increases in colorectal cancer and depression screenings rates between 2014 and 2018

(*t*=-4.9, *p*=.04 and *t*=-12.32 *p*=.007, respectively). For cervical cancer screenings, there was no significant difference in screening rates between 2014 and 2018, *t*=.43, *p*=.71.

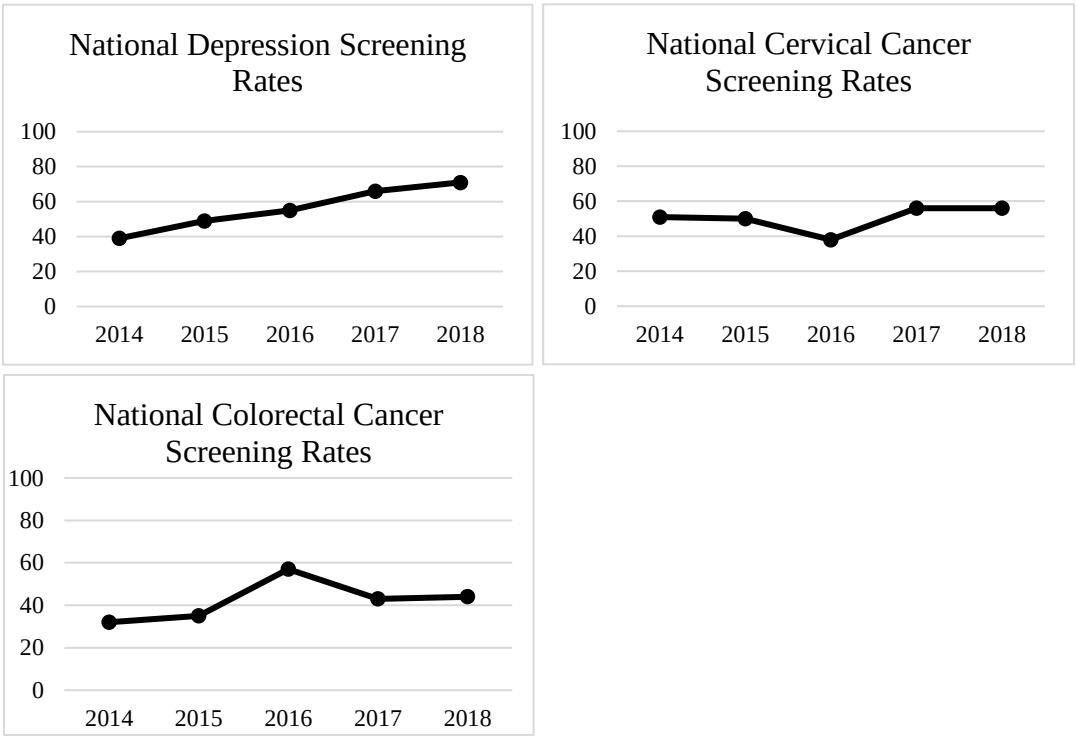


Figures 10-12. Percentages of depression, cervical cancer, and colorectal cancer screening rates from 2014 to 2019 for FQHCs in neighboring states, Georgia, Arkansas, and Texas.

5.6 National Screening Rates

To analyze the broadest comparison possible and to provide context for changes that may have been occurring at the national level during GRHOP's implementation, Figures 13-15 demonstrate national screening rates between 2014 and 2018 for each outcome variable. Using one-sample t-tests, GRHOP screening rates were compared to national rates to determine whether rates were significantly different. For depression screenings, the national percentage of screenings was 71% and GRHOP clinics screened

for depression at a rate of 75%, which is not a statistically significant difference, $t(13)=.66$, $p=.52$.



Figures 13-15. National averages of depression, cervical cancer, and colorectal cancer screening rates from 2014 to 2018.

5.7 Mission and Vision Statements

The secondary aim of this study was to examine the degree to which GRHOP FQHCs highlight mental or behavioral health services in their mission/vision statements or advertised in-house services on their websites. Each of the 14 GRHOP clinic websites as well as the 14 matched control, non-GRHOP clinic websites were examined. Of the 14 GRHOP clinics, only two included mental or behavioral health in their advertised mission or vision statement. However, 12 of the 14 clinics advertise in-house mental or behavioral health services. One additional clinic website mentioned services, but it was

too ambiguous to decipher whether they were offered in-house or based on a referral to community resources.

Of the 14 non-GRHOP clinic websites, three advertised mental or behavioral health in their advertised mission or vision statement. This did not differ significantly from the two GRHOP clinics that advertised mental or behavioral health in their mission or vision statements, $t(13)=-.73$, $p=.48$. For non-GRHOP clinics, 13 of the 14 clinics advertised in-house mental or behavioral health services, which also did not differ from the 12 GRHOP clinics, $t(13)=-.75$, $p=.47$.

CHAPTER 6: DISCUSSION

The purpose of this study was to examine whether depression screening rates for FQHCs within the GRHOP-footprint increased in conjunction with GRHOP support from 2014-2018 as well as compare rates of depression screenings to state- and size-matched comparison clinics outside of the Gulf Region. While the original aim was to collect screening rates from 2008 to 2018 in order to collect data from prior to GRHOP's initiation (2008-2012), this was not possible due to HRSA reporting requirements. As noted above, FQHCs were not required to report screenings rates for colorectal cancer until 2012 and depression until 2014. Thus, data were only collected for those years onward, meaning that only comparisons between 2014 and 2018 could be drawn. For depression screening rates, there were statistically significant increases in rates in GRHOP, non-GRHOP, and neighboring state FQHCs alike. However, contrary to expectation, these increases in depression screening rates did not differ based on group (GRHOP clinics vs. non-GRHOP clinics). Thus, while depression screening rates increased substantially between 2014 and 2018, there is no evidence to suggest that this was unique to the Gulf Region. In terms of cervical cancer screening rates, results from this study demonstrated that cervical cancer screenings rate did not statistically significantly change between 2014 and 2018 in GRHOP, non-GRHOP, or neighboring state FQHCs. On the other hand, colorectal cancer screening rates increased in non-GRHOP FQHCs and neighboring state FQHCs, but not GRHOP clinics. Cancer screenings were not a focus of GRHOP efforts. Overall, results demonstrate that GRHOP clinics substantially increased their rates of depression screenings as a result of funding. However, comparison clinics demonstrated similar outcomes, indicating a broader,

national push for integrated care. Importantly, it is not known whether GRHOP clinics would have been able to keep pace in terms of increasing screenings without the resources provided by GRHOP.

One important consideration for understanding the results from this study is that while the GRHOP-supported FQHCS did not increase depression screenings more so than control clinics, it is possible that without GRHOP's support, those clinics would have fallen behind in terms of screenings due to the impact of the Deepwater Horizon Oil Spill. This pattern was demonstrated with colorectal cancer screenings. Disasters may enhance vulnerability to mental health symptoms, as evidenced by sharp increases in symptoms following disasters. For example, following the 2001 September 11th terrorists' attacks in New York City, rates of post-traumatic stress disorder increased (Galea et al., 2002). Rates of mental illness following the DHOS are also available. For example, in one study of 452 southeast Louisiana residents impacted by the oil spill, rates of depression, anxiety, and post-traumatic stress increased and was predicted by the degree to which the oil spill disrupted participants' work, family, and social domains of life (Osofsky et al., 2011). Given these findings, it is crucial to recognize what may have happened without any additional support from GRHOP—not only may Gulf Region residents have experienced an uptick in mental health symptoms, but health capacity at clinics may have decreased due to competing priorities for funding. At a time when it was most needed, it is unlikely that FQHCs would have focused on building mental health capacity in their clinics without the funding provided by GRHOP. Further, results from this study suggest that depression screening rates may be substantially greater than published rates from other studies (Akincigil & Matthews, 2017).

In terms of sustainability, the majority of GRHOP clinics advertised in-house mental and behavioral health services on their websites post-funding in 2020; however, only two GRHOP-supported FQHCs (out of 14) included mental/behavioral health in their clinic's mission or vision statement. Having a unified mission is an indication of integration (Doherty et al., 1996; Heath et al., 2013). According to Langhinrichsen-Rohling and colleagues' (2015) Triple "E" model of integrated care, which consists of engaging healthcare systems, establishing services, and embedding integrated care system-wide, inclusion of mental and behavioral health into an organization's mission or vision statement is crucial for successful integration long-term. Considering that only two clinics have integrated these components into their mission statement, more action may be needed for these clinics to become fully integrated. Of note, non-GRHOP FQHCs also did not have high rates of integrated mission/vision statements, with only three of 14 clinics advertising mental or behavioral health in their mission/vision statements. One explanation for the lack of mental and behavioral healthcare inclusion in organization mission or vision statements is that healthcare systems may not see this as a crucial step towards integrated care. On a positive note, most GRHOP and non-GRHOP clinics advertised their mental and behavioral health services on their websites including the types of professionals offering services (e.g., social workers, psychiatrists) and the types of services offered (e.g., substance abuse counseling, mental health therapy). This finding suggests that most clinics studied have embraced the notion of integrated care.

The results of this study must be considered within the much broader state and national contexts. It would be a mistake to discount the impact of GRHOP based on the results from this study. For example, some clinics were so far behind that GRHOP

funding may have been used to meet the basic needs of clinics (such as implementing electronic health record systems or purchasing x-ray scanners). Further, although rates of screenings were not required to be formally reported prior to 2014, in many states, the clinics were not screening for depression at all. Thus, funding may have been used to bring clinics up to speed in terms of delivering quality healthcare rather than primarily focusing on mental health integration and depression screenings specifically. Nonetheless, results still demonstrate a substantial increase in screening rates in clinics in the Gulf Region across this time period.

At the same time that GRHOP was funding the MBHCPs, national or state-level grants may have been at play in other parts of the state or country, which an important consideration when interpreting results. For example, the American Psychological Association's (APA) *Monitor* magazine published an article in 2016 highlighting the push for integrated care, particularly as expressed by leaders in the field at the annual APA conference (APA, 2016). Additionally, it is possible that although only certain clinics were receiving funding from GRHOP, the money may have been dispersed more broadly across the state. For instance, Alabama has a network of primary care clinics that share the costs of certain expenses such as EHRs; thus, there may have been a spillover of funding and a dissemination of information or resources to other clinics across these states. Another complicating factor is that some states may have already received funding for healthcare clinics prior to GRHOP. For example, Louisiana received a great deal of relief funding following Hurricane Katrina in 2005, which may have contributed to the degree to which Louisiana had been able to successfully integrate healthcare, irrespective of the GRHOP funding and support. Overall, these results indicate that clinics within the

GRHOP footprint significantly increased their rate of depression screening; however, given the broad increase across the region, this increase cannot be attributed to GRHOP.

CHAPTER 7: STUDY STRENGTHS

Strengths of this study include the quasi-experimental design using state- and size-matched clinics. This design allowed for a more stringent comparison between clinics (GRHOP vs. non-GRHOP), rather than just within GRHOP clinics (change over time). Given that there has been a national push for integrated mental health care in the U.S. in recent years (APA, 2016), this comparison was crucial for helping to determine whether increases in screenings were more universal or unique to the Gulf Region as a result of the funding from GRHOP. Another strength of the study is the use of two other health-related screenings for comparison. Since GRHOP did not provide funding directly related to cervical and colorectal cancer screenings, these measures served as additional controls. UDS data utilization is also a strength of the study as FQHCs are required to report outcomes to HRSA; use of UDS data is well-documented in the literature and is thought to be bias-free due to reporting requirements mandated by funding (Jones et al., 2013). Further, the Bureau of Health Centers provides specific instructions to health centers as well as trainings and a helpline to assist with data collection and reporting, which is designed to increase data validity (Shi et al., 2012). Although UDS data have been widely used (Bruckner et al., 2020; Flock et al., 2017; Nath et al., 2016; Shi et al., 2012), there is a dearth of research examining the reliability of UDS data. Additionally, this study examined the degree to which FQHCs integrated mental and behavioral health into mission and vision statements, which is an important indication of integration (Doherty et al., 1996; Health et al., 2013; Langhinrichsen-Rohling et al., 2015). Finally, no known studies have examined the degree to which GRHOP influenced mental health integration in Gulf Region FQHCs, making this a novel contribution.

CHAPTER 8: STUDY LIMITATIONS

To the extent that primary care providers located within FQHCs can begin or continue to screen all primary care patients for depressive symptoms, healthcare will be one step closer to becoming an integrated, patient-centered system. It is important to note that in light of USPTF's recommendations to screen for depression only when there are adequate resources to address positive screenings (USPTF, 2016), it is possible that depression screening rates were limited by clinic-level factors that prevented conducting screenings safely (such as having crisis-protocols in place). Clinics also vary in terms of purpose; for example, some clinics offer dental services and thus, were not equipped to screen for depression. Neither assessing nor addressing these barriers to screenings were within the scope of this study; however, future research should address barriers to integration in under-resourced clinics. Additional limitations include the absence of reported screening rates prior to 2014, the use of archival data, and the matched-control design without the ability to control for other confounds such as the receipt of integrated care grants in non-GRHOP funded clinics. Future studies should assess depression screening rates in participating FQHCs in the years following the resolution of the MBHCP (2019 and onward) in order to determine the sustainability of GRHOP's integration initiative for the participating health systems. While using archival data also poses a limitation of this study due to the possible inaccuracy of reported rates of screenings and the inability to assess and control for confounds, reporting annual data to HRSA is a federal requirement. Additionally, the use of archival data is useful in that it allows us to view the region more broadly and track screening rate trends over time. While UDS makes retrieving data easily accessible in theory, this study required direct

communication with UDS and HRSA personnel to retrieve the data needed. It took several attempts to access the data that were requested as the original data set that was sent included errors. For example, data were supposed to be percentages and thus, out of 100%; however, numbers originally reported were well above 100 and obviously in error. Additionally, UDS did not provide information on how to interpret the percentages in terms of the population from which the percentage was being drawn (e.g., total patients in clinic's system or patients who attended a healthcare appointment during that year). Using the data available in coming years, future studies may examine factors that contributed to the sustainability of an integrated health system and areas of integration that were most sustainable for certain clinics, possibly accounting for individual differences among clinics.

The matched-control design in this study also poses limitations. Clinics were matched solely based on geographical (state and region) location and approximate size (number of clinic locations within each FQHC). Non-GRHOP FQHCs that most closely met the geographical and size requirements were chosen to be matched controls. Because clinics were not matched based on any additional variables, they did not serve as perfect controls. It is possible that unidentified variables may have contributed to the uptake of the implementation. However, the matched-control design was advantageous in that it allowed for the use of a smaller sample size as well as a retrospective control group of clinics to compare with the clinics that received funding and support from GRHOP. Moreover, regarding the mission and vision statements, their examination in 2020, following GRHOP's conclusion, may not have accurately depicted GRHOP's influence on clinic mission and vision statements. It is possible, although unlikely, that FQHC

mission or vision statements changed during the GRHOP funding period and statements reverted back following its resolution due to the lack of funding needed to continue with mental and behavioral healthcare integration. However, it is more likely that FQHCs did not view unified mission and vision statements as a priority, so while they did make efforts to increase integrated services, mission and vision statements may not have reflected these efforts. Further, most integrated care literature emphasizes that integrated healthcare providers should share a unified vision but do not explicitly cite mission or vision statements as a vehicle for integration (Doherty et al., 1996; Heath et al., 2013). Thus, it is possible that mission and vision statements do not accurately represent provider attitudes toward healthcare integration in FQHCs. Finally, this study only assessed two markers of integration—depression screening rates and unified mission/vision statements. While these are important indicators of integration, this did not reflect the full spectrum of GRHOP and MBHCP efforts; other markers might also be important. Future studies may wish to examine other measures of integration such as the number of behavioral health staff, whether the system hired a Behavioral Health Director to implement and sustain integration efforts, whether billing structures/financial sustainability was achieved, the number of patients receiving care via warm hand-offs, and the clinic's ability to provide same day behavioral health care to their patients.

CHAPTER 9: FUTURE DIRECTIONS

Though it was beyond the scope of this study, future studies could crosswalk available qualitative data related to integration uptake at individual clinics. For example, using state-specific measures, GHROP and FQHC administrators and staff rated the degree to which integration was implemented at each clinic. These data could provide a more comprehensive view of how varying mechanisms were implemented into FQHCs. Additionally, future research could explore the breakdown of how funding was allocated at each clinic. For example, resources may have been spent training behavioral health staff versus integrating mental and behavioral health into a joint electronic medical record. Future studies may also focus on the feasibility of the integration by interviewing or conducting focus groups with FQHC healthcare providers and staff. Ultimately, day-to-day operations change when mental and behavioral health become integrated into primary care and these key personnel may have insight into how integration went well, could be improved, or barriers to integration.

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APPENDIX: STATE- AND SIZE-MATCHED FQHCS

State & GRHOP designation	**FQHC Coastal and Non-Coastal Clinics, Sized-Matched by State; parentheses indicate number of clinics within each FQHC**						
LA GRHOP Clinics	Access Health (24) St. Charles	Jefferson Community Health (6) Jefferson	Jefferson Parish Human Services (2) Jefferson	New Orleans Health Department (4) Orleans	Priority Health (2) Jefferson	Start Corporation (1) Terrebonne	Teche Action Board Inc. (13) St Mary
LA Control Clinics	Primary Care Providers for Healthy Feliciana (10) East Feliciana	David Raines Community Health Center Inc (6) Caddo	Tensas Community Health Center Inc (2)	Primary Health Services Center (5) Ouachita	Rapides Primary Health Care Center Inc (2)	Hospital Service District No. 1A of the Parish Richland (1)	Winn Community Health Center (10)
MS GRHOP Clinic	Coastal Family Health Center (13) Harrison	—	—	—	—	—	—
MS Control Clinic	G.A. Carmichael Family Health Center (11) Madison	—	—	—	—	—	—
AL GRHOP Clinics	Bayou La Batre Area Health Department/ Mosteller (2) Mobile	Franklin Primary Health Center (18) Mobile and Baldwin	Mobile County Health Dept. (4) Mobile	—	—	—	—
AL Control Clinics	Christ Health Center Inc (2) Jefferson County	Whatley (15) Tuscaloosa	Capstone Rural Health Center (4)	—	—	—	—
Florida GRHOP Clinics	Escambia Community Clinics (16) Escambia	Florida DOH Walton County (4) Walton	Pancare of Florida Inc. (16) Bay	—	—	—	—
Florida Control Clinics	Tampa Family Health Centers Inc (15) Hillsborough	Foundercare Inc (4) Palm Beach	Jessie Trice Community Health System Inc (13) Miami Dade	—	—	—	—