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Collaborative Models of Care in the Appalachian Region of Tennessee: Examining Relationships Between Level of Collaboration, Clinic Characteristics, and Barriers to Collaboration

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ABSTRACT

Collaborative Models of Care in the Appalachian Region of Tennessee:

Examining Relationships Between Level of Collaboration, Clinic Characteristics, and Barriers to Collaboration

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Decades of research have shown that there are significant advantages to maintaining close communicative and collaborative relationships between primary care and behavioral health providers. Fiscal, structural, and systemic barriers, however, often restrict the degree to which such interprofessional collaboration can occur. In the present study the authors examined relationships between primary care clinics in the Appalachian region's characteristics (i.e., clinic type, rurality, and clinic size), barriers (i.e., fiscal, structural, and systemic) reported to using increased collaboration, and the level of collaboration used at a particular clinic.

For the present study 136 surveys were completed by providers working in primary care practices across the Appalachian region of Tennessee. The results showed that only about one fifth of the primary care clinics in Appalachian Tennessee reported engaging in moderate to high levels of primary care behavioral health (PCBH) collaboration (e.g., colocated or integrated models of care). Among community health clinics, however, nearly half reported moderate or high levels of collaboration.

The findings of this study underscore the importance policy change (e.g., changes in reimbursement patterns, increases in incentives, introduction of PCBH models in training programs) in facilitating the uptake of high levels of PCBH collaboration in Appalachian Tennessee (especially in regards to nonpublicly funded clinics). Further, the methodology used in this study could provide policymakers and researchers in other regions of the U.S. with a means for obtaining baseline data regarding local trends in PCBH collaboration and could serve as first step in developing a standardized methodology for comparing the overall uptake of PCBH collaboration models across regions.

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I would like to dedicate this dissertation to my grandmother, Florence Ellison, who instilled in me a belief that I could do and be anything that I set my mind to. I would also like to dedicate this dissertation to my daughter, Lydia, who can do and be anything that she sets her mind to.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

There is a well-documented discrepancy between the number of people who need mental health services and the number who actually seek and use services (World Health Organization, 2001). Recent studies suggest that approximately one out of four people experience a mental illness every year (World Health Organization, 2001); however, less than half of these individuals receive treatment (Kessler et al., 2003; Wang et al., 2005). This trend is consistently noted across diagnoses, age groups (World Health Organization, 2001), ethnicities, and regions of the United States (Hauenstein et al., 2006). These data suggest that there are many people suffering with untreated mental health problems in the United States and around the world (U.S. Department of Health and Human Services, 1999; World Health Organization, 2001) resulting in great individual, community, and economic costs (Kessler et al., 2008).

The collaboration between primary care and mental health has been proposed to be one way to address these disparities (Collins et al., 2010). Increasing evidence suggests that collaborative care often results in more efficient use of resources (Orden, Hoffman, Haffmans, Spinhoven, & Hoencamp, 2009), increased patient and provider satisfaction with provided (Blount, 2003), and improved patients outcomes (e.g., Katon et al., 1995). Because of these findings, local and national policies have been initiated to facilitate the uptake of collaborative models of care (Lvbijaro & Funk, 2008; New Freedom Commission on Mental Health, 2003).

Evidence suggests that there has been an increased interest in the use of collaborative models of care over the past several decades; however, significant barriers may continue to impede its uptake (Mechanic, 2002). The current study is an examination of the patterns of use of collaborative models in primary care settings across the Appalachian Region of Tennessee.

Additionally, the current study is an examination of the relationships between level of collaboration, clinic characteristics, and barriers to collaboration in an effort to inform the development of policy and implementation procedures for collaborative models of care in diverse primary care settings.

Specialty Mental Health

In recent years there has been an increasing emphasis on the development, translation, and use of evidence-based interventions in routine clinical practice. The purpose of this changing emphasis has been both to improve the quality of mental health services provided and to improve patient outcomes (Drake et al., 2001). Unfortunately, many people who contact mental health services only do so in settings where evidence-based treatments are not, or cannot, be provided (Kessler et al., 2005). For example, only about half of the people receiving treatment for mental health concerns do so in specialty mental health settings (Kessler et al., 2003). Further, only 41% of the people who are referred to a mental health specialist from primary care attend even one appointment (Axelrad, Pendley, Miller, & Tynan, 2008), and of those who do attend their first appointment, between 40% and 60% drop out of treatment after only one or two sessions (Armbruster & Fallon , 1994; Axelrad et al., 2008; Kazdin, Holland, & Crowley, 1997; U.S. Department of Health and Human Services, 1999).

Research has identified several major barriers that may influence people's decisions to seek and follow-through with mental health treatment in the specialty mental health setting including: 1) lack of access to services (Cunningham, 2009); 2) patients feeling that they can handle problems on their own (Mechanic, 2002), and 3) stigma (Bray, Enright, & Easling, 2004; Corrigan, 2004; Jameson & Blank, 2007; Judd et al., 2006).

Lack of Access to Services

Not having access to services can result from shortages of mental health providers (Goldsmith, Wagenfeld, Manderscheid, & Stiles, 1997; Jameson & Blank, 2007), problems with transportation, and problems paying for services (Jameson & Blank, 2007). A study published in 2000 found that slightly less than half of rural U.S. counties are without at least a master's level psychologist, while three out of four rural counties are lacking a psychiatrist (Holzer, Goldsmith, & Ciarlo, 2000). Because of this, many people living in underserved areas may be forced to travel long distances to access care, find alternative sources of care, or go without care (Goldsmith et al., 1997; Jameson & Blank, 2007).

Additionally, many people may not have access to services because they are unable to pay. Managed care restrictions, lack of access to adequate health insurance, and lower incomes all impede many people's ability to access appropriate mental health services (Cunningham, 2009). Patients with lower incomes and/or lack of access to adequate health insurance report both the acceptability and availability of mental health services as significant barriers to treatment seeking and follow-through (Steele, Dewa, & Lee, 2007). Thus, patients with lower incomes, patients from minority populations, and patients who are lacking insurance are the least likely to be receiving appropriate mental health services (Alexander, Arnkoff, & Glass, 2010). For example, in a survey of rural adults with mental health concerns, Fox et al. (2001) found that 30% of people report that lacking health insurance played a major role in their decision not to seek mental health treatment. Also, while Medicaid may be available to many low income residents, only 33% of those who are in need actually receive Medicaid funding (Fox et al., 1995).

Patients Feeling that They Can Handle Their Problems on Their Own

Stoic and self-efficacious values are prevalent in many communities, especially those in rural areas. Individuals who value stoicism often do not seek help for mental health problems because they feel that they should not publicly display their problems and should suffer in private. Similarly, individuals that value high self-efficacy often express a high sense of personal responsibility for health and mental health issues. As such, these people often believe that, even if problems occur, outside assistance is not needed. Studies have shown that individuals holding such values are less likely to seek out and follow-through with mental health treatments (Judd et al., 2006).

Stigma

Many people may simply choose not to seek out mental health treatment in order to avoid stigma (i.e., labeling, discrimination, exclusion, and feelings of guilt, shame, and fear) associated with mental health diagnoses and treatment seeking (Bray et al., 2004; Corrigan, 2004; Jameson & Blank, 2007; Judd et al., 2006). Many studies have confirmed this positive relationship between perceived stigma and avoidance of mental health treatment seeking (e.g., Komiya, Good, & Sherrod 2000; Vogel, Wade, & Haake, 2006). For example, in one study 60% of those with mental health concerns who had not sought treatment identified stigma as the reason why (Andrews, Issakidis & Carter, 2001).

Primary Care as De facto Mental Health

The primary care setting has been identified as the "de facto" location for people to seek and receive mental health services (Fox, Merwin, & Blank, 1995; Reiger, Goldberg, & Taube, 1978). Most individuals seeking treatment for a mental or behavioral health concern to do so in the primary care setting (National Mental Health Association, 2000). Currently, 25%-30% of the

office visits in the primary care setting involve a mental health or psychosocial issue as part of the presenting concern (Gunn & Blount, 2009); 60%-70% of psychotropic medications for mental health problems are prescribed in the primary care setting (Lewis, Marcus, Druss, Olfson, & Pincus, 2004); and over 30% of nondiagnosed individuals report that they would initially seek help in primary care were problems to arise while only 4% report that they would initially seek help from a psychologist (National Mental Health Association, 2000).

Although most people seek help for a mental or behavioral health concerns in the primary care setting, time constraints (Cooper et al., 2005), lack of training (in mental health assessment, diagnosis, and treatment; Geller & Muus, 2000; deGruy, 1997), reluctance to diagnose or misdiagnose psychiatric disorders because of lack of knowledge, fears about the diagnosis' impact on future health insurance, (Jameson & Blank, 2007), and poor reimbursement (deGruy, 1997) all affect the quality of the mental health treatment that is provided there. Studies have shown that of those treated for depression in the primary care setting, dosages for antidepressant medication are often inappropriate, inadequate follow-up is often scheduled, and psychotherapeutic services are often not accessed. As such, it is estimated that only about one third of people seeking mental health services in the primary care setting are receiving minimally adequate services (Russell, 2010). Further, studies suggest that although primary care physicians are generally interested in assessing for and treating mental and behavioral health problems, they often report being dissatisfied with the quality of services that they can provide (Clatney, MacDonald, & Shah, 2008).

Currently, nearly 80% of the population visits a primary care provider during any given year. As discussed above, however, primary care providers are generally unable to provide adequate mental health treatment (Russell, 2010). Primary care providers, however, generally

report that they would welcome and would be more satisfied with the services that their patients received were there a mental health professional to assist them in addressing various psychosocial concerns (Clatney, MacDonald, & Shah, 2008). Thus, the provision of mental health in primary care may be an acceptable way to increase the likelihood that those in need of treatment will contact the services that they need (Strosahl, 1998).

What is Collaborative Care?

The close collaboration between various health and mental health services (e.g., dentistry, primary care, behavioral health, psychiatry, etc.) is a well-known framework for improving the quality and efficiency of health service provision. Such interdisciplinary collaboration is often called integrated care (O'Donohue, Byrd, Cummings, & Henderson, 2005). One form of integrated care that has been increasingly studied over the past several decades involves the collaboration between primary care and mental health professionals. Though the benefits of such collaboration have been well studied, collaboration in primary care can vary widely depending on: the members of the collaborative team; the collaboration model used; the target population of the services; the method of patient identification; the program scale; the level of patient centeredness; level of administrative involvement; the financing model used; and level of collection of practice data (Miller, Kessler, Peek, & Kallenberg, 2011). The labels applied to collaborative primary care services can also vary widely depending on the context and presentation of the service (e.g., collaborative care, integrated primary care, primary care behavioral health, care management, patient centered medical home, etc.). As such, when writing about, discussing, and/or researching integrated primary care services it is often difficult to decipher what elements are actually involved (Miller et al., 2011). For the purposes of this paper the terms collaborative care and primary care behavioral health (PCBH) collaboration will

be used interchangeably to refer to the collaboration between primary care and mental health professionals in the service of providing biopsychosocial assessment, intervention, and/or prevention to a population (Byrd, O'Donohue, & Cummings, 2005).

One of the reasons that there may be such discrepancy in the literature regarding the nomenclature describing collaborative care is that it can take many forms, involve various types of services, and engage a range of resources (O'Donohue, Byrd, Cummings, & Henderson, 2005). Regardless of form, however, the general goals of collaboration remain the same and include improved patient outcomes, increased patient satisfaction, more efficient use of resources, and increased access to appropriate services by reducing treatment seeking barriers (Blount, 2003; James & O'Donohue, 2009). Specifically, collaborative care is meant to help better address mental health problems (e.g., anxiety and depression), problems with both mental health and health related components (e.g., substance abuse), management of chronic diseases (e.g., asthma and diabetes), and mental health problems arising secondary to a physical condition (e.g., depression arising following a cancer diagnosis; O'Donohue, Byrd, Cummings, & Henderson, 2005).

Collaborative relationships between primary care and mental health professionals can fall on a spectrum ranging from minimal collaboration to full integration (Blount, 2003). A model of collaboration's placement on this spectrum is dependent upon several factors including: the physical distance between mental health and primary care services; the degree to which systems and treatment decision-making responsibilities are shared (Butler et al., 2008); the temporal distance between referral and initial mental health contact; the degree to which providers communicate about shared patients; and the degree to which patients experience a divide between primary care and mental health services (Miles et al., 2007). Though collaboration is

conceptualized as falling on a spectrum (from low to high) with multiple influencing factors, for ease of description, the author describes three broad categories representing low, moderate, and high levels of collaboration and the factors that define each.

Low Collaboration (Coordinated Care)

Services that provide the least amount of collaboration are described as coordinated models of care. Coordinated models can range from having *minimal collaboration* (where the primary point of contact between primary care and specialty mental health is the referral) to *basic collaboration at a distance* (where there is regular communication between the two services following referral; Collins et al., 2010). Coordinated models of care are the most traditional means by which primary care patients gain access to specialty mental health (Peek, 2007). What distinguishes coordinated services and other kinds of collaborative care is physical proximity. With coordinated services, the specialty mental health clinic is located in a practice space that is distinct from the referring primary care clinic. Because of this, it is often not possible for patients to be referred, scheduled, and seen in the specialty mental health clinic on the same day (Blount, 2003). Such delays in scheduling have been shown to be associated with high no-show rate in specialty mental health (e.g., Axelrad et al., 2008). Also, while there may be some communication between primary care and specialty mental health providers (typically via letter or telephone), regular communication may be difficult because of differing schedules and the differing cultures (e.g., differing ideas of confidentiality and problem etiology).

Moderate Collaboration (Colocated Models of Care)

Colocated models of collaboration typically function much like coordinated models of care with the exception that in colocated models primary care and mental health services are physically located in the same physical space. As in coordinated care, primary care and mental

health services most often retain separate charting systems and staff but likely have fluid referral system set up (Collins et al., 2010). In colocated models, the close physical proximity of the two services encourages patients to follow-through with referrals (e.g., in one study over 80% of patients attended initial visit following referral from primary care; Valleley et al., 2007), providers to regularly communicate following a referral, and providers to collaborate with one another in the development of treatment plans (Blount, 2003). In this model mental health is still considered a separate specialty service where primary care providers retain ultimate responsibility for patient outcomes and treatment delivery (Butler et al., 2008).

High Collaboration (Integrated Models of Care)

Integrated models of care involve primary care providers and mental health providers that are located in the same facility and jointly coordinate patients' treatment planning and decision making (Butler et al., 2008). In this model mental health and primary care providers maintain close communication with one another when providing treatment and generally follow similar treatment agendas and strategies (Butler et al., 2008). Mental health and primary care providers also share some, if not all, of the same charting and/or administrative systems (Collins et al., 2010) and have an appreciation for each other's professional roles and cultures. When mental and behavioral health needs are identified by primary care providers, patients can often be seen by behavioral health professionals on the same day and sometimes jointly with primary care providers (Blount, 2003). Finally, in an integrated setting both primary care and behavioral health staff subscribe to a biopsychosocial view of health and mental health (Dall, 2011).

Historical Development of Collaborative Care

In the early 1960s studies conducted by Kaiser Permanente revealed that somatization and stress were related to the concerns of approximately 60% of the patients presenting at

physicians' appointments. The National Institute of Mental Health (NIMH) subsequently funded a series of replication studies that showed that among these patients brief psychotherapeutic interventions often led to improved symptomology. The NIMH studies also showed that these improvements in symptomology were related to an overall reduction in healthcare use, thus resulting in significant cost savings for the entire health system (Cummings, O' Donohue, Hayes, & Follett, 2001). The largest cost savings was found to be achieved when the behavioral health services either collaborated closely with or were integrated into the primary care setting (Jones & Vischi, 1979).

Though these early studies highlighted the some of the benefits of close collaboration, the trend of "carved out" mental health reimbursements beginning in the 1980s set up an environment that was not amenable to this approach. During that time, however, research on the subject continued. For example, the state of Hawaii and the Healthcare Financing Administration collaborated to carry out "the Hawaii Medicaid Project," which was a 7-year study that showed that significant cost offset could be achieved through the provision of brief and targeted mental health interventions delivered in the primary care setting. The study also found that the provision of traditional psychotherapy actually increased overall healthcare costs (Cummings, O' Donohue, Hayes, & Follett, 2001).

On the heels of the Hawaii Medicaid Project, throughout the 1990s various organizations began developing programs and demonstration around collaborative care. Kaiser Permanente, Group Health Cooperative of the Puget Sound, Kaiser Group Health of Minnesota, and Duke University Medical Center all developed and experimented with models of collaboration during this era, some of which are still in existence today (Cummings, O'Donohue, Hays, & Follette, 2001).

Evidence for Collaborative Models of Care

Over the years much evidence has amassed in support of various levels of collaboration (Butler et al, 2008). The following paragraphs are a review of studies, programs, and demonstration projects representing different levels of collaboration that have shown efficacious outcomes for collaborative care.

Coordinated Models of Care (Low Collaboration)

Screening and Brief Intervention (SBI) is a coordinated model of care that has received significant empirical support. Though SBI programs can vary widely depending on clinic resources and care needs, they generally involve targeted coordination, consultation, and referral between primary care and mental health around a specific presenting concern (most often substance abuse and dependence). In this model primary care providers generally take on responsibility for providing routine assessments, brief interventions, and specialty mental health referrals (Collins et al., 2010). Multiple randomized controlled trials have shown SBI programs to reduce alcohol consumption at a rate significantly greater than that of "treatment as usual" among a wide variety of patients presenting in the primary care setting (Whitlock et al., 2004).

Colocated Models of Care (Moderate Collaboration)

Another randomized controlled trial looked at patients receiving depression care in primary care clinics with colocated mental health specialists. Though the authors found no significant outcome differences between patients treated in a colocated environment and those receiving "treatment as usual," they found that those receiving colocated services spent less time in treatment, scheduled fewer follow-up appointments, and reported similar levels of satisfaction as patients undergoing usual care (Orden, Hoffman, Haffmans, Spinhoven, & Hoencamp, 2009).

Partially Integrated Models of Care (Moderate Collaboration)

A highly collaborative and partially integrated model for depression care that is widely used and has amassed significant empirical support is called project IMPACT. Project IMPACT is a randomized controlled trial involving 1,801 older adults presenting with symptoms of depression and/or dysthymia. It involves bachelors and masters level primary care staff taking on the role of a depression care manager (Collins et al., 2010). A care manager typically provides education, assessment, ongoing monitoring, brief counseling, and problem-solving support for patients presenting with depression and/or dysthymia. The model also involves a highly structured consultation and referral process for patients in need of medication management. Patients in the IMPACT model condition showed greater reductions in symptom severity, higher satisfaction with services provided, higher rates of depression treatment, and less functional impairment than patients in the "treatment as usual" condition (Unützer et al., 2002). The IMPACT model is beginning to be tested and is showing similarly positive results for other populations including adolescents with depression (Richardson, McCauley, & Katon, 2009), patients with cancer (Ell et al., 2008), and patients with diabetes and depression (Katon et al., 2004).

Fully Integrated Models of Care (High Collaboration)

Fully integrated systems of care have received somewhat less research attention over the past several years. However, several studies suggest that patients receiving depression care in a primary care environment where specialty mental health services are provided in the context regular primary care visits have more improved symtomology (e.g., Henderson et al., 1999; Katon et al., 1995; Katon et al., 1999), show greater adherence to medication regimens, express greater satisfaction with treatment received (e.g., Katon et al., 1995; Katon et al., 1999), and

followed through with mental health referrals at a higher rate (e.g., Katon et al., 1995) than those receiving "treatment as usual."

Cherokee Health Systems (CHS) has also drawn some positive conclusions about integrated care through its system-wide data collection and analysis. CHS is a community health agency providing services to patients across East Tennessee. CHS provides fully integrated primary care and behavioral health services in 14 clinics. CHS's data show that sites providing integrated services have reduced rates of referral to specialty mental health, lower overall costs per patient, lower specialist use, lower emergency room use, and lower hospital admission rates (Butler et al. 2008).

Overall, these data provide some evidence that compared to "treatment as usual" collaborative care models of care can produce improved patient outcomes across populations – especially for the treatment of depression. Evidence regarding the use of collaborative care models for other presenting problems (such as anxiety and substance abuse) is more limited. Though some studies show positive results when comparing collaborative care to "treatment as usual" for a variety of presenting concerns, such an evidence base is still emerging (Butler et al., 2008).

Barriers to the Uptake of Integrated Primary Care

Despite their increasing evidence base (Butler et al., 2008) and increasing support through policy (Mechanic, 2012; New Freedom Commission on Mental Health, 2003; World Health Organization, 2001), collaborative models of care are yet to be widely adopted into clinical practice (Funk & Lvbijaro, 2008; New Freedom Commission on Mental Health, 2003). Research has identified an assortment of individual, organizational, and systemic barriers that have hindered its uptake (Mauer, 2003). Barriers include: fiscal barriers (e.g., difficulty securing

adequate reimbursement); organizational barriers (e.g., reluctance or resistance to change); operational barriers (e.g., space and logistics; Butler et al., 2008); clinical barriers (e,g., differing practice patterns and understanding of confidentiality); and training barriers (e.g., differing philosophies of mental health; Gunn & Blount, 2009).

Fiscal Barriers

Fiscal barriers have been repeatedly identified as being one of the most important and widespread barriers to collaboration and integration (Butler et al., 2008). In a study conducted by Kathol and colleagues (2010), key informants working for 13 healthcare organizations nationally recognized for providing integrated primary care services were administered a semistructured interview with questions about barriers that they have experienced providing integrated services in their organization. These respondents identified fiscal concerns such as: problems using mental health CPT codes in nonmental health settings; problems knowing who to bill to (e.g., for medical or behavioral health services); payers' being reluctant to pay for mental health codes billed on the same day as other services; lacking reimbursement for care managers; and reduced reimbursement for mental health services provided in the primary care setting. These concerns were frequently identified as impacting the type and structure of collaborative model used in the organization (Kathol et al., 2010). Additionally, fiscal problems were identified as preventing integrated models of care to remain viable after start-up funds and/or grant funding was depleted (Gunn & Blount, 2009; Kathol et al., 2010).

Although CPT codes exist for various assessment and treatment related mental health services that can be provided in the primary care setting, many payers either do not reimburse for these codes or reimburse at a rate that will not cover the costs of providing the services. These problems are typically the result of managed care organizations that have mental health "carved-

out" from other health related service reimbursements (Gunn & Blount, 2009). Often, however, even if reimbursement for certain treatments provided in the context of primary care is possible, the billing must be done through different channels, thus increasing the workload for billing staff. This increased workload can lead to the need for new staff, or, if that is not financially possible to hire new staff, to the downsizing or reduction in level of collaboration of mental health services (Kathol et al., 2010). Further, one of hallmarks of highly collaborative and integrated models of care is providers' ability to consult with one another and share information about patients. Few payers, however, provide reimbursement for this, often time-consuming service (Gunn & Blount, 2009).

Organizational and Operational Barriers

To facilitate close collaboration and/or integration organizations must undergo significant structural changes. For example, changes must be made to systems including referral practices, billing practices, scheduling practices, and patient flow. Because of these structural changes that accompany the implementation of collaborative models, staff responsibilities often also must change. The significant investment of time and effort required by staff at all levels of an organization implementing collaborative models of care often initiates individual and organizational reluctance to change. One of the primary reasons identified for this reluctance is the perceived increased time investment that is required for implementation. For example, primary care providers may perceive that they will have to spend extra time being trained in mental/behavioral health issues, be required to administer lengthy assessments, and/or be required to consult at length with mental health providers, thus taking time away from their patients (Butler et al, 2008).

Operational concerns including increased need for physical space, increased need for supplies, and problems with the integration of medical and behavioral records can also serve as barriers to collaborative models of care. Most primary care clinics were not built with collaborative models of care in mind. As such, these clinics may not have the physical space to house behavioral health staff or have a clinic layout that is conducive to ongoing collaboration. Also, with the increased focus on behavioral health assessment and early intervention that is seminal to increased levels of collaboration, clinics will likely encounter an increased need for using self-report screeners and assessment tools. Administration of these instruments requires increased use of clinic resources (e.g., paper for printing them). Finally, documentation systems set up for primary care may not be adequate to account for the addition of notes regarding consultation and behavioral health interventions, thus resulting in increased expenditures for upgrading and training staff regarding documentation changes (Gunn & Blount, 2009).

Another organizational barrier that is often seen in larger healthcare organizations and impacts collaborative programs' sustainability is the inability to achieve buy-in at all levels of an organization (Kathol et al., 2010). Some collaborative care programs are designed by organizational administration and implementation guidelines and policies are handed down to individual clinics. This "top-down" dissemination strategy, while being able to quickly and efficiently get implementation information to those who will be using it (Kauth, Sullivan, Cully, & Blevins, 2011), implementation procedures will likely be inflexible and may not be able to address clinic specific barriers (especially in very large organizations; Greenhaugh et al, 2004). "Bottom-up" implementation strategies, on the other hand, use local stakeholders to tailor the collaboration model to the individual needs of the community, clinic, or practitioner, though

strategies implemented in this manner often do not acquire adequate administrative support ensure long-term sustainability (Kauth et al., 2011).

Clinical and Training Barriers

Theoretical explanations for problems seen in primary care can drastically differ depending on who is looking at them (Gunn & Blount, 2008). For example, medical providers may conceptualize problems in terms of organic diseases while mental health providers may conceptualize problems primarily in terms of emotions and interpersonal relationships (McDaniel, Campbell, & Seaburn, 1995). Additionally, medical and mental health professionals often have differing languages to talk about various health and mental health problems. While both providers' conceptualizations can be valuable in informing treatment, differences in viewpoint, language, and training can stand in the way of effective inter-provider communication and collaboration (Gunn & Blount, 2008; McDaniel, Campbell, & Seaburn, 1995).

Barriers Vary by Collaboration Model

Different levels of collaboration present with unique barriers to implementation. For example, for coordinated models (low levels of collaboration), time is likely the greatest barrier. In these practices staff often take on extra responsibilities such as administering screening measures, providing brief interventions, and consulting with specialty mental health providers, thus adding to their already hectic schedule (Collins et al., 2010). In colocated models (moderate levels of collaboration) space, consent, and maintenance of separate records are likely the greatest barriers. Additionally, given the disparity in time between traditional 50-minute specialty mental health visits and 15-minute primary care visits, demand for colocated services could quickly outstrip appointment availability (Collins et al., 2010). Finally, in integrated models (high levels of collaboration) problems with billing and reimbursement, systemic

resistance to change, and ethical issues regarding confidentiality could all serve as barriers to implementation (Collins et al., 2010).

Barriers Vary by Clinic Characteristics

Collaborative care models have been shown to work most efficiently and effectively when they are designed and developed around the unique needs of individual clinics. Clinics serve unique populations, have access to unique resources, are located in unique communities, and employ unique individuals. As such, it is likely that clinics also experience unique barriers to collaboration (Greenhaugh et al, 2004). Mauer and Druss (2010) suggest that stakeholders interested in collaboration should consider several key questions before choosing a model of integration including: 1) What services are already available in the community?; 2) What are the skills and training levels of the current workforce?; 3) What kind of support is provided from management and administration?; 4) Do payers support reimbursement for integration?; 5) What population will be receiving services?; and 6) How do those involved feel about collaborative care?.

What services are already available in the community? Clinics in communities with few specialty mental health services available are likely limited in the types of collaborative services in which they can engage. Coordinated models of care, for example, typically involve primary care providers referring, consulting, and coordinating with local mental health specialists. If specialty services are not available, however, such models are not effective. Therefore, increased levels of collaboration found in colocated and integrated models may be most appropriate for communities lacking independent specialty mental health services (Collins et al, 2010). A study published in 2000 found that slightly less than half of rural U.S. counties were without at least a master's level psychologist (Holzer, Goldsmith, & Ciarlo, 2000). As

such, clinics located rural communities may find themselves with limited options for collaboration.

What are the skills and training levels of the current workforce? Providers, like clinics, are unique in their experiences, skill sets, and training (Oser & O'Donohue, 2009). Training programs for clinicians (primary care and mental health) have not generally included specialized training experiences that involve extensive collaboration (Mauer, 2009). Therefore, providers who have had diverse experiences and/or specialized training that involves collaborative work will likely be more willing to engage in more intensive collaborative models of care regardless of where the clinic is located (Oser & O'Donohue, 2009). To date, however, no study has looked at how provider education and experiences are related to the collaborative model in which they are engaged.

What kind of support is provided from management and administration? Studies suggest that in order for innovations such as collaborative care to be successfully adopted into a clinic's everyday practice it is necessary to obtain administration buy-in and support. In large hospitals and healthcare organizations, achieving administrative buy-in can be a time consuming and often daunting task when change is initiated at the clinic level. In smaller organizations and private practice clinics, owners and administrators are likely well aware of the needs and challenges faced at the clinic level; therefore, these clinics are more likely to be able to quickly and efficiently implement innovations such as collaborative care (Collins et al., 2010; Greenhaugh et al, 2004). Because physicians who work in rural primary care are more likely to own their own practices than those working in other areas (Weeks & Wallace, 2008), they may be able to more easily obtain administrative buy-in and support for implementing all levels of collaborative care.

Do payers support reimbursement for integration? As discussed above, paying for and obtaining reimbursement for engaging in collaborative models of care is one of the major barriers to uptake (Collins et al., 2010). Many studies have shown that colocated and integrated models of care can result in a systemic reduction in healthcare expenditures. Much of this savings occurs, however, through reduced hospital admissions and emergency room visits (Cummings, O' Donohue, Hayes, & Follett, 2001). Therefore, large healthcare management organizations providing a variety of healthcare services will likely benefit from such savings. Smaller primary care organizations and private clinics, however, will likely not receive direct financial benefits from the systemic savings (Collins et al., 2010). Again, because rural communities have a disproportionately large number of provider owned clinics (Weeks & Wallace, 2008), it may be that clinics located in rural communities will be less able to finance colocated and integrated models of care through systemic cost offset.

The predominant model for reimbursement of mental health services is that they billed and paid for out of a pool of money that is carved-out or separate from funds used to reimburse other health related interventions. For mental health services to be able to be paid for out of this carved out fund, the services provided must meet certain criteria (Collins et al., 2010). One common criteria is that health and behavioral health codes cannot be billed on the same day. This means then that the services provided primary care patients by care managers and psychologists will not receive reimbursement. Though recent years have brought increasing dialogue regarding such policies (Mauer, 2009), most states still allow such billing practices. Minnesota, however, recently announced an initiative where all payers must reimburse for care management services in the context of depression management in primary care (Mauer & Druss, 2010). Therefore, individual state laws and policies regarding reimbursement for colocated and

integrated models may play a large role in determining whether these collaborative models of care can be sustainable in certain communities and clinics (Mauer, 2009).

An emerging concept that shows promise in supporting reimbursement for collaborative models of care is called the patient-centered medical home. In a patient-centered medical home the primary care provider is the director of a healthcare team that involves all specialist providers that any given patient is working with. The centerpiece of this model is regular communication and collaboration between team members to improved overall healthcare provision (Mauer, 2009). As such, communication and collaboration are activities that are reimbursable in the patient-centered medical home. Further, health and mental health problems are conceptualized as being inextricably related. Therefore, funding for physical and mental health treatments derive from the same funding pool, thus resulting a reduction in restrictions regarding the provision of behavioral health services in primary care settings (Kathol et al., 2010).

Federally Qualified Health Center (FQHC) is a designation given to certain community health clinics located in regions that are identified as medically underserved. Clinics with the FQHC designation provide a variety of services including primary care, preventative care, oral health care, mental health care, and substance abuse treatment to all individuals regardless of their ability to pay. Medicaid reimburses FQHC clinics on per patient, per visit rate regardless of services rendered (Department of Health and Human Services, 2011). The Affordable Care Act outlines that Medicare and Medicaid should test innovative payment and service delivery models to improve the quality of healthcare provided to individuals in underserved areas. As such, in November 2011 a 3-year demonstration project was initiated involving FQHCs to evaluate a model of care provision and reimbursement based on the patient-centered medical home. Therefore, clinics in rural and/or medically underserved areas that qualify for the FQHC

designation already may provide mental health and substance abuse treatment and will increasingly be monetarily incentivized for engaging in the types of collaboration common in integrated models of collaborative care (Centers for Medicare and Medicaid Services, n.d.).

What population will be receiving services? Every community has a unique population and every clinic within that community serves a slightly different aspect of that population (e.g., age, gender, culture, income, problem, etc.). Because of this, each clinic has a specific set of mental and behavioral health treatment needs to be met (e.g., substance abuse, depression, chronic disease management, etc.). As such, the types of needs of the patients at a clinic should be taken into account when deciding what collaborative model to use in a given clinic (Mauer, 2009). For example, colocated and integrated models of collaborative care may fit best for rural populations because families seeking mental health treatment in the primary care setting may avoid the stigma associated with the visibility of visiting an establishment solely associated with the provision of mental health services (i.e., community noticing one's truck parked outside the mental health center; deGruy, 1997). To date, however, no study has looked at how patient characteristics differ depending on the collaborative model being used.

How do those involved feel about collaborative care? Research has shown that patients and providers alike are generally more satisfied with services that are provided in a collaborative format. Providers practicing in an integrated setting, for example, report increased job satisfaction, reduced stress, and are more likely to stay in their jobs (deGruy, 1997). Patients involved the project IMPACT described above report higher satisfaction with services than did patients receiving treatment as usual (Unützer et al., 2002). To date, however, no studies have looked at how provider satisfaction with the services that they provide differ by model of collaboration in which they are engaged.

Current Uptake of Integrated Primary Care

Despite its increasing evidence-base and recent increase in policies supporting it, anecdotal evidence suggests that collaborative care models have yet to be widely adopted into clinical practice (Lvbijaro & Funk, 2008; New Freedom Commission on Mental Health, 2003). At present, however, only two studies have been published that examine the prevalence and/or uptake of collaborative models of care.

In 2005 a study was published that surveyed family practice physicians in New Jersey. The results showed that 13.5% of respondents reported having a mental health provider working in their office. Of these, 25.5% worked with a social worker, 22.4% worked with a licensed psychologist, 10.2% worked with a psychiatrist, 4.1% worked with some other kind of mental health provider, and the remainder worked with multiple types of mental health providers (Brazeau, Rovi, Yick, & Johnson, 2005).

A 2010 study surveyed providers and administrators working in publicly funded practices in the state of Texas regarding their use of collaborative and integrated assessment and treatment strategies. The study revealed that 69% of respondents engaged in cotreatment of mental health problems by primary care and behavioral health staff, 65.4% reported being at a site where both primary care and mental health professional work in the same facility, and 51.2% reported using records that combine both medical and behavioral health (Sanchez, Thompson, & Alexander, 2010).

The two studies depict stark differences regarding the current uptake of collaborative models of care in the United States. The former study reported relatively low use of moderate to high levels of collaboration (13.5% of practices) while the latter study reported relatively high levels of moderate to high collaboration (65.4% of practices). The differences in how these

studies represent the uptake of collaborative care can likely be explained by the fact that they were published 5 years apart, they were conducted in two different states, and one was conducted with only family physicians while the other was conducted primarily with providers practicing in clinics receiving public funds. Because of these differences, however, it is not possible to determine (or generalize) the usage and uptake of collaborative models of care. Therefore, to date, no researcher has attempted to determine the uptake of different collaborative models of care being used in multiple types of clinics, with multiple funding sources, and multiple types of providers of primary care services.

Summary

There is a significant discrepancy between the number of people who are in need of mental health services and those who are using them (World Health Organization, 2001). Although most people who seek mental health treatment do so in the primary care setting (National Mental Health Association, 2000), various problems prevent them from receiving adequate care (Russell, 2010). The provision of collaborative models in the primary care setting has been discussed as a way of providing a larger subset of the population with convenient access to quality mental health care (Blount, 2003; James & O'Donohue, 2009). Though there are repeated claims in the literature that the uptake of collaborative models of care has been limited by identified barriers (e.g., Funk & Lvbijaro, 2008; New Freedom Commission on Mental Health, 2003), there are no studies that have looked at the current use of various models of collaborative care across a variety of types of primary care sites and providers. Additionally, no studies have looked at how primary care clinic characteristics are related to level of collaboration and barriers to collaboration. The answers to these research questions could provide policymakers with valuable information regarding the current state of collaborative care

in their region as well as information that could help them better understand the needs and experiences of primary care providers throughout the region.

Aims

The overarching purpose of this study was: 1) to assess how, and to what extent, primary care behavioral health (PCBH) collaboration is being used in Appalachian Tennessee and 2) evaluate how relationships between clinic characteristics (i.e., clinic type, rurality, and clinic size), level of collaboration, and barriers to collaboration are related to the use of PCBH collaboration in the region.

Specific aims of this study are:

1. To validate a survey designed to measure primary care clinic characteristics, levels of collaboration, and barriers to collaboration.
2. To evaluate the types of collaborative care currently being used in primary care clinics in the Appalachian region of Tennessee.
3. To evaluate possible relationships between clinic characteristics (i.e., clinic type, rurality, and clinic size), current levels of collaboration, and barriers encountered in achieving that level of collaboration.
4. To evaluate the possible impact of clinic characteristics (i.e., clinic type, rurality, and clinic size) on the relationship between current level of collaboration and the barriers encountered in achieving that level of collaboration.
5. To evaluate possible differences between clinics' current levels of collaboration and their ideal levels of collaboration.
6. To evaluate how clinics that are interested in increasing their level of collaboration differ (in terms of clinic characteristics) from those that are not.

The results of this study will provide researchers, clinicians, and policy makers in the Appalachian region of Tennessee with information that could serve as a basis for policy changes. Further, the survey and data collection process developed for this study could provide a method for evaluating the progress of primary care behavioral health collaboration in other regions, or on a larger scale. Finally, this study could inform future research into more targeted implementation strategies for use in primary care clinics interested in using PCBH models of collaboration.

Hypotheses

1) Primary care sites across the Appalachian region of Tennessee will currently be using a wide range of levels of PCBH collaboration.
2) Clinic characteristics (i.e., clinic type, rurality, and clinic size), current levels of collaboration, and barriers encountered in achieving that level of collaboration will all be related.
3) The relationship between primary care clinics' current levels of collaboration and the barriers that they encountered in initially achieving that level of collaboration will differ depending on clinic characteristics (i.e., clinic type, clinic size, and rurality).
4) Primary care clinics will report their ideal levels of collaboration to be higher than their current levels of collaboration.
5) The characteristics (i.e., clinic type, clinic size, and rurality) of those clinics that report ideal levels of collaboration as being higher than current levels of collaboration will differ from those clinics that do not.

CHAPTER 2

METHOD

The present study was carried out in two phases: an initial *content validation* phase in which proposed measures were reviewed and validated and a *hypothesis testing phase* in which the measure was completed by providers working in primary care practices across the Appalachian region of Tennessee.

Participants

Content Validation Phase

Content validity refers to the extent to which the items on a survey actually measure the construct(s) that they were developed to measure. One commonly accepted method of ensuring content validity involves recruiting a group of experts (between 5 and 10) and having them review and rate the items of the measure for relevance and clarity (Yaghmaie, 2003). Ratings from all experts are examined and compared to a predetermined minimum inclusion criterion. Items with ratings falling above the inclusion criterion are retained unchanged while items falling below that criterion are either discarded or revised based on the opinions of the reviewing experts (Waltz & Bausell, 1983; Yaghmaie, 2003).

As such, in the initial content validation phase of this study participants included content knowledge experts and clinical experts in primary care services, mental health services, and collaborative models of care. Four content knowledge experts were identified through a review of collaborative care literature and affiliation with professional organizations such as the Collaborative Family Healthcare Association (CFHA). Clinical experts included professionally respected primary care and behavioral health professionals working in various types of primary care settings across the region (i.e., University/Training practices; Private practices; Freestanding practice affiliated with a large healthcare organizations; Hospital based practices; and

Community Health Centers/Public Health Clinics/Federally Qualified Health Centers/Rural Health Centers). Twelve clinicians were identified through existing professional relationships and through regional chapters of various providers' professional associations. As such, 16 content knowledge experts and clinical experts were identified to participate in the content validation phase of this study.

Hypothesis Testing Phase

In the hypothesis testing phase of this study participants included physicians, nurse practitioners, and other primary health care providers working in practices across the Appalachian region of Tennessee. For the purposes of this study the "Appalachian region of Tennessee" is defined as it is outlined by the Appalachian Regional Commission (ARC) and includes 52 counties in the eastern part of the state (see Appendix A for a map and listing of Tennessee counties in the Appalachian region; ARC, n.d.).

In an attempt to recruit a representative number of participants from the primary care clinic types that were examined in this study (e.g., for profit clinics, nonprofit clinics, training clinics, community health centers, rural health clinics, etc.), study staff used the recruitment strategy outlined in the following section..

Hypothesis testing phase participant recruitment. Study staff identified names, telephone numbers, addresses, and providers working in primary care clinics throughout the Appalachian region of Tennessee in three ways.

1) Study staff searched the websites of local chambers of commerce (city and/or county) for organizations, practices, and/or individuals that listed themselves as providing "primary care" services. Study staff recorded available information (i.e., clinic name, telephone number, address, and practicing providers) in an Excel spreadsheet. In the event that

information provided on the chambers' websites were incomplete, study staff performed a Google search to identify missing fields.

2) Study staff searched the Health Resources and Service Administration (HRSA) and Tennessee Primary Care Association (TPCA) websites for information regarding clinics that provide services for underserved and uninsured populations. The HRSA website provides a listing of clinics actively receiving federal grants that qualify them for Federally Qualified Health Center (FQHC) status. The TPCA website contains a listing community health centers across the state. Study staff recorded available information (i.e., clinic name, telephone number, address, and practicing providers) in an Excel spreadsheet. In the event that information provided on the chambers' websites were incomplete, study staff performed a Google search to identify missing fields.
3) Study staff collected information regarding clinics in the region by conducting a systematic internet search using several online engines including DexKnows.com and Google.com. DexKnows.com allows its users to conduct searches for businesses by county. Study staff conducted DexKnows.com searches for each of the 52 counties in the region using the search term "primary care." Study staff recorded available information (i.e., clinic name, telephone number, address, and practicing providers) in an Excel spreadsheet. In the event that information provided on the chambers' websites were incomplete, study staff performed a Google search to identify missing fields.

Following the collection of potential participant information, study staff cleared the spreadsheet of duplicate entries. Study staff then called each of the clinics on the list via telephone to confirm that the name, contact information, and providers working within the clinics collected through the aforementioned methods were correct. Study staff read a prepared

telephone script (see Appendix B). Based on clinic staff's responses, study staff updated clinic information and removed information for clinics that did not provide primary care services, clinics that had closed, and clinics that changed names. Study staff made a maximum of three attempts to contact each clinic via telephone. If no contact was made, study staff removed the clinic from the list of potential participants. If multiple providers were confirmed as working in a single clinic, their names were recorded in alphabetical order. The first listed provider for each clinic was identified as being the clinic's contact for this study. These providers' names and addresses were then provided to post office staff who reviewed, corrected, and confirmed address accuracy. The 579 providers whose contact information was identified through this process were the individuals who were contacted for potential participation in this study.

Materials

As described above, this study was carried out in two phases; a content validation phase and a hypothesis testing phase. A three-part survey was developed (and adapted from previous literature) for the primary phase of this study that measures: 1) clinic characteristics; 2) level of collaboration, and 3) barriers to collaboration (The survey can be found in Appendix C). Additionally, a series of questions designed to be completed by content area experts and clinical area experts measuring item relevance and clarity were developed (and adapted from previous literature) for the content validity phase of this study (The content validity survey can be found in Appendix D).

Hypothesis Testing Phase

Clinic characteristics. For the purposes of this study clinic characteristics included: clinic ownership model, clinic type, clinic size, and clinic rurality. The variables regarding ownership and clinic type are meant to differentiate clinics by both primary funding source and

administrative structure. To determine clinic ownership model a question was developed that asks respondents to choose "which of the following models of ownership best describes the primary care practice in which [he/she] provide[s] the majority of [his/her] clinical services:" privately owned; hospital or healthcare organization owned; university owned; or publicly owned (nonuniversity). To determine clinic type, a question was developed that asks respondents to indicate which of the listed practice types (choose all that apply) best describes his or her clinic: for-profit clinic; nonprofit clinic; training clinic; free clinic; walk-in/urgent care clinic; community health center; public health clinic; federally qualified health center (FQHC); FQHC look alike, and rural health clinic.

Previous studies have defined clinic size by the number of full-time practitioners working in a clinic (e.g., Wang et al., 2006; Wensing et al., 2002). As such, an item was developed asking respondents to indicate the number of full-time primary care practitioner positions that are being staffed in their practice. For the purposes of this study the continuous variable, *number of practitioners* was recoded into the following four categories: 1 = Single-Handed Clinics; 2-3 = Small Clinics; 4-5 = Medium Clinics; and 6 < = Large Clinics (Wang et al., 2006).

An item was developed to asking respondents to indicate their practice's zip code. Zip codes were used to define a clinic's rurality in two different ways using the United States Department of Agriculture's Rural-Urban Commuting Area (RUCA) and the Office of Management and Budget's (OMB) Metropolitan Statistical Areas (MSA). The RUCA scale measures a community's rurality by examining where people who live in that community commute to for employment. Rurality is rated on a scale from 1 to 10 (with 1 generally being most urban and 10 generally being the most rural; USDA, 2005). For the purposes of this study, however, RUCA scores were recoded into two categories as defined by the Rural Health

Research Center (n.d.): urban (RUCA = 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, 10.1) and rural (RUCA = 4.0, 4.2, 5.0, 5.2, 6.0, 6.1, 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2, 10.0, 10.2, 10.3, 10.4, 10.5, 10.6).

The MSA system is commonly used by federal agencies and takes into account a location's proximity to a "core urban area." Areas defined as "metropolitan" consist of a core urban area that has at least 50,000 people; areas defined as "micropolitan" consist of a core urban area of at least 10,000 people; and all other areas can be considered rural (US Census Bureau, n.d.).

As suggested in previous literature (e.g., Waltz & Bausell, 1983; Yaghmaie, 2003), for content validation expert ratings of a measure's items should be compared to a predetermined minimum criterion. For the purposes of this study experts rated each item in two domains (i.e., clarity and relevance) on a scale from one to four (with one meaning that an item is not relevant or clear and four meaning that an item is very relevant or clear). The predetermined minimum criterion for an item's inclusion in the hypothesis testing phase's survey is a mean rating of three. As such, items with mean ratings regarding both relevance and clarity falling at or above three were retained "as is" for the final version of the primary survey. Items with mean relevance scores falling below three were either revised or omitted based on the feedback and opinions provided by the expert panel. Similarly, items with mean clarity scores falling below three were revised based on the feedback and opinions provided by the expert panel. In the present study two rounds of content validation were completed and final mean scores for the items included in the clinic characteristics section of this measure exceeded the set criterion and ranged from 3.8 to 4 in regards to relevance and from 3.2 to 4 in regards to clarity.

Level of collaboration. The second section of the survey was adapted from a measure developed by Miles and colleagues (2007). This measure was designed to evaluate the level of collaboration between primary care and mental health services. The original measure consisted of 10 questions focused on five different dimensions of the collaborative process: communication, physical proximity, temporal proximity, integration of expertise and services, and stigma. The original authors of the measure, however, did not provide information regarding its content validity. Study staff, therefore, included this measure in the content validation phase of the present study. Following two rounds of expert ratings, comments, and revisions, a final version of the measure was agreed upon. In the present study following two rounds of content validation, final mean scores for the items included in the "level of collaboration" section of the measure ranged from 3.5 to 4 in regards to relevance and from 1.8 to 4 in regards to clarity. The low clarity ratings observed regarding several items were related to problems with grammar and spelling that were corrected prior to measure finalization in accordance with expert recommendations.

The final version of the measure included 13 items: three items asking about communication practices; one item asking about physical proximity; one item asking about temporal proximity; six items asking about the integration of services; and two items asking about stigma. Each item included three questions. The first question asks respondents to indicate which of the five anchor statements best describes their clinics' *current* level of collaboration. Each of the five anchor statements corresponds to a number on a scale ranging from one to five (with one representing very low levels of collaboration and five representing very high levels of collaboration). The second question asks respondents to indicate which of the five anchor statements best describes their clinic's *ideal* level of collaboration. The third question asks

respondents to indicate how important it is that their clinic engages in collaboration at the ideal level that was indicated in the previous question.

Barriers to collaboration. The third section of the survey consists of six questions regarding barriers that that respondents perceived both when setting up their clinics' current level of collaboration and when thinking about increasing their clinic's level of collaboration. The author developed the questions for this section based on classifications of barriers to the uptake and maintenance of collaborative care discussed in prior literature (e.g., Butler et al., 2008; Kathol et al., 2010). This section consists of six questions focused on three different classes of barriers commonly experienced in collaborative primary care: fiscal; organizational and operational; and training. Respondents were asked to indicate the level at which their clinic experienced each of the three barriers to collaboration on a scale ranging from one to five (with one meaning that the barrier was not a concern at all and five meaning that the barrier was a very big concern). Respondents were also asked to indicate the level at which their clinic would experience each of the three barriers were their practice to increase its level of collaboration. Following the two rounds of content validation, final mean scores for the items included in the barriers portion of the survey were all 4 in regards to relevance and ranged from 3.5 to 3.6 in regards to clarity. These scores exceed the minimum passing criterion of 3 suggesting that no further revision was necessary.

Content Validation Phase

Content validation questionnaire. Content validity of the items in the primary measure was ascertained through feedback provided by content experts and clinical experts identified in the manner described above. The experts' ratings and feedback were collected by way of several questions administered in the content validation phase of the study (see Appendix D). These

questions were adapted from a measure developed by Waltz and Bausell (1983) and used by Yaghmaie (2003). Expert respondents were asked to rate each item of the primary survey both in regards to its relevance and its clarity. Expert respondents indicated their ratings on a scale ranging from one to four (with one meaning that the item was not relevant or clear and four meaning that the item was very relevant and clear). Following each rating question, experts were asked to qualitatively explain their opinions regarding the changes they thought needed to be made to the survey to increase its relevance and/or clarity.

Online Survey System

Study staff loaded both the primary survey and the content validation surveys onto the SurveyMonkey.com website. Following the surveys' entry, web links were identified so that participants could access and complete the surveys anonymously online.

Procedure

The present study was carried out in two phases: an initial *content validation phase* in which proposed measures were reviewed and validated and a *hypothesis testing phase* in which the measure was completed by primary care providers working in primary care practices across the Appalachian region of Tennessee.

Content Validation Phase

In the content validation phase of the study the primary measures were reviewed for clarity and content consistency by experts and clinicians with significant experience with primary care services, mental health services, and collaborative models of care. Identified experts and experienced clinicians were contacted by study staff via email and were provided with a brief description of the aims and purpose of the study. Contacted experts were then asked to indicate whether they would be willing to assist study staff in the content validation phase of

the study (for email template see Appendix E). Experts and clinicians who expressed willingness to review the hypothesis testing survey were sent an email containing instructions for completing the content validation survey, informed consent documentation, and a link to access the survey through the SurveyMonkey.com online survey portal.

Two weeks following the initial emailing, reminder emails were sent to the experts who had not completed the survey. After 2 more weeks the survey link was closed and collected data were downloaded from the SurveyMonkey.com survey portal and converted into a Microsoft Excel spreadsheet for analysis. Mean relevance and clarity ratings were calculated for each item evaluated (ratings are on a scale from one to four). As suggested in previous literature (e.g., Waltz & Bausell, 1983; Yaghmaie, 2003), expert ratings were compared to a predetermined minimum criterion. For the purposes of this study the predetermined minimum criterion for an item's inclusion in the primary phase's survey without revision is a mean rating of three. As such, items with mean ratings regarding both relevance and clarity falling at or above three were retained "as is" for the final version of the hypothesis testing survey. Items with mean relevance scores falling below three were revised in accordance with the feedback and opinions provided by the expert panel prior to inclusion in the final version of the hypothesis testing survey. Similarly, items with mean clarity scores falling below three were revised based on the feedback and opinions provided by the expert panel prior to inclusion in the final version of the survey. Due to low clarity scores during the first round of content validation, significant changes to the hypothesis testing survey were warranted and a second round of content validation was conducted. After the second round of content validation, clarity scores were recalculated and all scores were deemed acceptable (i.e., mean item clarity scores were calculated to be above the predetermined cut-off score of 3.0, ranging from 3.2 to 4.0). Following the content validation

phase, modifications made to the survey and method were submitted and approval through the ETSU IRB.

Hypothesis Testing Phase

As described above, participants in the hypothesis testing phase of the study included physicians, nurse practitioners, and other primary health care providers working in practices across the Appalachian region of Tennessee. After all potential participant contact information was collected through the methods described above, a letter was sent via the U.S. Postal Service to the identified providers. The letter contained a brief description of the project, a description of ways to complete and return the survey (e.g., via mail or online; see Appendix F), a self-addressed and stamped envelope, and a complete copy of the survey. Also, the initial mailing included a postcard with which potential participants could enter into a drawing for an Amazon.com gift card. Three weeks following the initial mailing, a follow-up letter was sent to those potential participants whose completed surveys had not been received. The follow-up letter contained a reminder about the purpose of the project, a description of ways to complete and return the survey (e.g., via mail or online; see Appendix F), a self-addressed and stamped envelope, and a complete copy of the survey. Three weeks following the secondary mailing a final letter was sent to those potential participants whose completed surveys had not been received. The content of this final mailing was identical to that of the secondary mailing. Six weeks after the final mailing, the survey link was closed and collected data were downloaded from the online survey portal and converted into an SPSS format for data analysis.

Power Analyses

A set of a-priori power analyses were performed using GPower power analysis software to determine the sensitivity of the proposed analyses (i.e., minimum detectable effect size) at 80% power ($1 - \beta$ error probability = .80) with α error probability = .05. Because the sample

size for the current study was unknown, analyses were performed for a range of three possible sample sizes (i.e., small sample size: N = 50; medium sample size: N = 100; large sample size: N = 150; see Table 1).

Table 1.

A-Priori Power Analyses: Minimum Detectable Effect Size.

Sample Size (N)	Spearman Rank Correlation (|ρ|)	Fisher Exact Test (w)
50	.375	.621
100	.272	.439
150	.224	.358

CHAPTER 3

RESULTS

A total of 571 survey packets were distributed to primary care providers practicing in the 52 county region comprising Appalachian Tennessee (ARC, n. d.). Seven were returned as "undeliverable" and one was returned by a provider that reported s/he is not currently practicing medicine in the State of Tennessee. A total of 136 were returned completed (i.e., a return rate of 23.8%). Of these, 122 were returned via mail and 14 were completed using the online survey system. The distribution of surveys across urban vs. rural areas was as follows: 77 surveys (of 340; 22.6%) were returned by primary care providers practicing in clinics located in Metropolitan Statistical Areas (MSAs) and 51 surveys (of 231; 22.1%) were returned by providers practicing in clinics in Non-Metropolitan Areas.

In order to determine whether the geographic distribution of providers who responded to the survey was representative of the geographic distribution of the providers to which the surveys were distributed, a Pearson's χ^2 test for independence was performed. Specifically, this test evaluated whether the proportion of surveys returned from each of the MSAs and Non-Metro Areas involved in this study differed from what would be expected based on the proportion of surveys distributed to each of the MSAs and Non-Metro Areas involved in this study. The test confirmed that the distribution sample and the returned survey sample did not significantly differ on the basis MSA or Non-Metro Area designation (χ^2= 12.023; df = 7; p = 0.100). See Table 2 for relevant descriptive statistics.

Table 2.

Crosstabs and Chi-Squared Test of Independence Describing the Relationship between Surveys Distributed and Returned and Metropolitan Statistical Area (MSA)

MSA	Surveys Distributed		Surveys Returned	
	Observed Count *(Expected Count)*	*Percent of Distributed*	Observed Count *(Expected Count)*	*Percent of Returned*
Nashville-Davidson-Murfreesboro-Franklin, TN	29 *(25.3)*	*5.1%*	2 *(5.7)*	*1.6%*
Cleveland, TN	15 *(13.9)*	*2.6%*	2 *(3.1)*	*1.6%*
Chattanooga, TN	67 *(67.0)*	*11.7%*	15 *(15)*	*11.7%*
Johnson City, TN	50 *(58.8)*	*8.8%*	22 *(13.2)*	*17.2%*
Kingsport-Bristol-Bristol, TN-VA	43 *(44.1)*	*7.5%*	11 *(9.9)*	*8.6%*
Knoxville, TN	106 *(103.7)*	*18.6%*	21 *(23.3)*	*16.4%*
Morristown, TN	30 *(27.8)*	*5.3%*	4 *(6.2)*	*2.9%*
Non Metro Area	231 *(230.4)*	*40.5%*	51 *(51.6)*	*39.8%*
Total	571 *(571)*	*100%*	136 *(100%)*	

Note: Distribution of returned surveys was not significantly different from the distribution of mailed surveys.

Descriptive statistics were examined regarding the clinic specific demographic information collected from all respondents. When asked about their clinics' "ownership model," 66.4% (n = 89) of the providers responding to the survey reported working in a "privately owned clinic;" 23.1% (n = 31) reported working in a "hospital owned clinic;" 4.5% (n = 6) reported working in a "university owned clinic;" and 6% (n = 8) reported working in a "publicly owned (nonuniversity) clinic." Respondents were asked all of the "clinic types" that represented the clinic in which they worked. Of those asked, 74.1% (n = 100) reported working in a "for-profit

clinic;" 11.1% (n = 15) reported working in a "nonprofit clinic;" 6.7% (n = 9) reported working in a "training clinic;" 8.1% (n = 11) reported working in a "walk-in/urgent care clinic;" and 20.6% (n = 28) reported working at a "community-type health clinic" (i.e., community health clinic, free clinic, rural health clinic, Federally Qualified Health Center (FQHC), FQHC look-alike, and public health clinic). Finally, when asked about "patients seen," 76.9% (n = 93) of respondents reported working at a clinic that served "children;" 80.2% (n = 97) worked at a clinic that served "adolescents;" 79.3% (n = 96) worked at a clinic that served "adults;" and 71.9% (n = 83) worked at a clinic that served "older adults" (See Table 3 for full breakdown of ownership models, clinic types, and patient types seen).

Of the 132 respondents who responded to the survey question about the number full-time equivalent (FTE) primary care providers (PCPs) working in their clinics the median number of FTE PCSs reported was 3 (min = 0.5 FTE and max = 105 FTE; s.d. = 10.407). As suggested by Wang et al. (2006), the continuous variable, number of FTE PCPs, was recoded into four categories: 1 FTE PCP = Single-Handed Clinic; 2-3 FTE PCPs = Small Clinic; 4-5 FTE PCPs = Medium Clinic; and 6 FTE PCPs = Large Clinic. Thirty-seven provider responses (30.1%) were recoded as working in single-handed clinics, 45 (33.1%) were working in small clinics, 25 (18.4%) were working in medium clinics, and 25 (18.4%) were working in large clinics (see Table 4).

Table 3.

Descriptive Statistics for Ownership Models, Clinic Types, and Populations Served

Clinic Characteristic	Number of Respondents Endorsing (n)	Total Number of Respondents (N)	Percentage
Ownership Model			
- Privately Owned	89	134	66.4%
- Hospital Owned	31	134	23.1%
- University Owned	6	134	4.5%
- Publicly Owned (Nonuniversity)	8	134	6.0%
Clinic Type			
- For-Profit	100	135	74.1%
- Nonprofit	15	135	11.1%
- Training	9	135	6.7%
- Walk-in/Urgent Care	11	135	8.1%
- Free Clinic	1	135	0.7%
- Community Health	7	135	5.2%
- Public Health	3	135	2.2%
- FQHC	12	135	8.9%
- FQHC Look-Alike	1	135	0.7%
- Rural Health Clinic	11	135	8.1%
- **Community Health Clinic – Aggregate**	**28**	**135**	20.6%
Population Served			
- Children	93	121	76.9%
- Adolescents	97	121	80.2%
- Adults	96	121	79.3%
- Older Adults	87	121	71.9%

Table 4.

Clinic Size

Size	# of FTE PCPs	N	Percent
Single-Handed Clinic	.5 – 1.49	41	30.1%
Small Clinic	1.5 – 3.49	45	33.1%
Medium Clinic	3.5 – 5.49	25	18.4%
Large Clinic	5.5 <	25	18.4%
Total		132	100.0%

A total of 115 of the 136 respondents provided information about the types of providers who worked in their clinic. Of the 115 responding, 92 (67.6%) reported having at least one "Medical Doctor" on staff; 27 (19.9%) reported having a "Doctor of Osteopathic Medicine" on staff; 71 (52.2%) reported having a "Nurse Practitioner" on staff; 23 (16.9%) reported having a "Physician's Assistant" on staff; and 2 (1.7%) reported having another type of PCP on staff. Further, 38 (28.9%) respondents reported that their clinics only had physicians (i.e., MDs and DOs) on staff; 14 (10.3%) respondents reported only having mid-level providers (i.e., NPs and PAs) on staff; and 63 (46.3%) of respondents reported having both physicians and mid-level providers on staff. Finally, 23 (18.5%) respondents reported that their clinic had at least one behavioral health provider (BHP) working at least part-time in the office. Of the respondents reporting that their clinic had a BHP on-site: one reported having one part-time BHP; eight reported having 1 FTE BHP; five reported having two FTE BHPs; four reported having 3-5 FTE BHPs; and five reported having 6-10 FTE BHPs.

Hypothesis 1

The first hypothesis stated that primary care sites across the Appalachian region of Tennessee would currently be using a wide range of levels of primary care behavioral health (PCBH) collaboration. To support this hypothesis, basic descriptive statistics (i.e., mean, median, range, and standard deviation) were examined in regards to the 13 survey items representing *current level of collaboration* (See Table 5).

Table 5.

Descriptive Statistics for the 13 Items Measuring Level of Collaboration

	Current				Ideal				Importance			
	Medi-an	Range	Mean *(Sd)*	N	Medi-an	Range	Mean *(Sd)*	N	Medi-an	Range	Mean *(Sd)*	N
Communication												
Item 8- PCP talks to MHP about treatment	1	0 – 4	1.66 *(1.26)*	135	4	0 – 4	3.31 *(1.08)*	135	3	0 – 4	3.18 (0.87)	130
Item 9 – MHP talks with PCP about treatment	1	0 – 4	1.51 *(1.20)*	135	4	0 – 4	3.48 *(0.93)*	135	3	0 – 4	3.33 *(0.81)*	132
Item 10 – MHP talks with PCP about missed appointments.	0	0 – 4	0.89 *(1.22)*	119	4	0 – 4	3.35 *(1.12)*	117	3	0 – 4	3.05 *(0.98)*	114
Physical Proximity												
Item 11 – Distance between PCP and MHP offices	1.5	0 – 4	1.69 *(0.93)*	134	0	0 – 1	1.91 *(2.01)*	134	2	0 – 4	2.53 *(1.02)*	134
Temporal Proximity												
Item 12 – Time between MH referral and first appointment	1	0 – 4	1.19 *(1.10)*	128	0	0 – 1	1.41 *(1.92)*	128	3	1 – 4	2.94 *(0.74)*	128
Mental Health Services and Expertise												
Item 13 – Specialty MH referral practices	3	0 – 4	2.54 *(0.80)*	131	3	0 – 4	2.60 *(0.92)*	131	3	0 – 4	2.85 *(0.96)*	130
Item 14 – Use of pharmacological interventions	3	0 – 4	2.73 *(0.78)*	133	3	0 – 4	2.88 *(0.92)*	133	3	0 – 4	2.93 *(0.83)*	131
Item 15 – Use of mental health counseling interventions	2	0 – 4	1.93 *(1.33)*	134	4	0 – 4	2.95 *(1.33)*	133	3	0 – 4	2.83 *(1.01)*	133
Item 16 – Use of behavioral health counseling interventions	3	0 – 4	2.51 *(1.03)*	133	3	0 – 4	2.95 *(0.99)*	131	3	0 – 4	3.01 *(0.85)*	125
Item 17 – Level of MH expertise in clinic	2	0 – 4	2.48 *(0.88)*	131	3	1 – 4	3.09 *(0.79)*	130	3	1 – 4	2.99 *(0.74)*	127
Item 18 – % of patients for which PCPs consult with MHPs	1	0 – 4	1.19 *(0.69)*	135	2	0 – 4	2.47 *(0.96)*	131	3	0 – 4	2.82 *(0.95)*	123
Signage/Stigma												
Item 19– Degree to which staff refer to MH services as a separate program	2	0 – 4	1.61 *(0.97)*	131	2	0 – 4	1.78 *(0.98)*	129	3	0 – 4	2.61 *(1.00)*	126
Item 20 – Name and signage does not imply that MH services will be provided	0	0 – 4	1.06 *(1.37)*	127	1	0 – 4	1.24 *(1.42)*	127	3	0 – 4	2.47 *(1.08)*	125

Note: Collaboration was measured on a scale ranging from 0 to 4 (with 0 representing low levels of collaboration and 4 representing high levels. Items 11, 12, and 19 were reverse coded for consistency.

Hypothesis 2

The second hypothesis stated that clinic characteristics (i.e., clinic type, rurality, and clinic size), current levels of collaboration, and barriers encountered in achieving that level of collaboration would all be related.

Hypothesis 2 – Part 1 (Barriers to collaboration and current level of collaboration). Supporting the first part of the second hypothesis involved examination of the relationship between clinics' current levels of collaboration and the barriers encountered in initiating collaboration. The nonparametric Spearman rank correlation was used to examine the relationships between these variables. Of the 39 relationships tested in this analysis, 3 were found to be significant.

Initially, a significant negative correlation was found between temporal proximity (i.e., time between mental health referral and initial appointment; Item 12) and organizational barriers [i.e., referral practices; scheduling practices; patient flow; lack of physical space; and problems with the integration of medical and behavioral records; $\rho\ (119) = -.312$, $p < .001$]. Thus, the more organizational barriers that a clinic reports, the longer the time will be between patients' mental health referrals and initial appointments. Second, a significant negative correlation was found between temporal proximity (Item 12) and fiscal barriers [i.e., problems using mental health CPT codes outside of mental health settings; payers' being reluctant to pay for mental health codes billed on the same day as other services; and reduced reimbursement for mental health services provided in the primary care setting; $\rho\ (116) = -.256$, $p = .005$]. This finding suggests that the more fiscal barriers that a clinic reports, the longer the time will be between patients' mental health referrals and initial appointments. Finally, there was a significant positive correlation between the provision of mental health counseling interventions (MHCI;

Item 15) and training barriers [i.e., medical and mental health providers being trained to conceptualization problems in different ways and/or use differing language to describe problems ρ (123) = .230, P = .01]. This finding suggests that more training barriers that a clinic reports, the more likely it was that a clinic would provide high quality MHCI.

Hypothesis 2 – Part 2 (Barriers to Collaboration and Clinic Type)

Supporting the second part of the second hypothesis involved examination of the relationship between the *barriers to collaboration* (organizational, training, and financial barriers) and *clinic type* (clinic ownership model, for-profit clinic, nonprofit clinic, training clinic, free clinic, walk-in/urgent care clinic, community health center, public health clinic, federally qualified health center, FQHC look-alike, rural health clinic). Thirty-three Fisher exact tests for independence were used to determine the significance of the relationships between these variables. Fisher exact tests were chosen to examine these relationships because *barriers* are represented by ordinal variables and *clinic type* is represented by nominal variables. Additionally, because of the size of the contingency table created by evaluating the relationship between these variables (2 x 5), it is unlikely that an adequate expected cell count would be present in each of the cells to reliably carry out chi-squared tests of independence. Further, because of high demand for computer memory when calculating Fisher exact p-values for the large contingency tables in SPSS, for some tests the Monte Carlo method of approximating the Fisher p-value was used.

Of the 33 relationships tested in this series of analyses, two were found to be significant. These analysis showed that respondents working in community health centers [p = .018 Monte Carlo estimate of Fisher's exact p-value] and walk-in/urgent care clinics [p = .004, Monte Carlo

estimate of Fisher's exact P-value] reported experiencing more organizational barriers than those working in other settings.

Hypothesis 2 – Part 3 (Barriers to Collaboration and Rurality)

Supporting the third part of the second hypothesis involved examination of the relationship between the *barriers to collaboration* and *rurality*. For the purposes of this analysis rurality [represented by Metropolitan Statistical Area (MSA) codes determined by zip code] was recoded into two categories: MSA (i.e., urban) and non-MSA (i.e., rural). Three Fisher exact tests for independence were used to determine the significance of the relationship between these variables.

Of the three relationships tested in this set of analyses, one was found to be significant. Specifically, respondents working in clinics located in non-MSAs reported having experienced a proportionally higher degree of training barriers (e.g., differences in the way that PCPs and MHPs conceptualization and talk about health and mental health problems) than respondents working in clinics located within MSAs [p = .033, Monte Carlo estimate of Fisher's exact p-value].

Hypothesis 2 – Part 4 (Barriers to Collaboration and Clinic Size)

Supporting the fourth part of the second hypothesis involved examination of the relationship between the *barriers to collaboration* and *clinic size*. For the purposes of this analysis *clinic size* was represented by the number of practitioners regularly working in the clinic. As described by Wang et al. (2006), the continuous variable *number of practitioners* was encoded into the following four categories: 1 = Single-Handed Clinics; 2-3 = Small Clinics; 4-5 = Medium Clinics; and 6 < = Large Clinics. Three Fisher exact tests for independence were performed to determine the significance of the relationship between these variables.

The results of these analyses showed that respondents working in medium and large clinics reported having experienced a proportionally higher degree of training barriers than respondents working in single handed or small clinics [p = .013, Monte Carlo estimate of Fisher's exact p-value].

Hypothesis 2 – Part 5 (Level of Collaboration and Clinic Ownership Model)

Supporting the fifth part of the second hypothesis involved examining the relationship between *level of collaboration* and *clinic ownership model* (i.e., privately owned clinics, hospital owned clinics, university owned clinics, and publicly owned clinics). Thirteen Fisher exact tests for independence were performed to determine the significance of the relationships between these variables. Of the 13 relationships tested, 2 were found to be significant. First, *temporal proximity* (i.e., wait time between mental health referral and initial appointment; item 12) of mental health services was found to differ by *clinic ownership model* (p = .042, Monte Carlo estimate of Fisher's exact p-value). Specifically, the longest wait times reported between referral and initial appointment were found in publicly owned clinics. Fifty percent of respondents working in that setting reported that it took longer than 1 month between referral and initial appointment as opposed to 32.9% of respondents in privately owned clinics, 30% of respondents in hospital owned clinics, and 0% of respondents in university owned clinics. Conversely, proportionally more publicly owned clinics reported wait times between referral of initial appointment of less than 1 day than other clinics (12% of publicly owned clinics; 3.3% of hospital owned clinics; 0% of university owned clinics; and 0% of privately owned clinics).

Second, results showed that the provision of *behavioral health counseling interventions* (BHCI; i.e., the frequency and quality of behavioral counseling interventions provided; item 16) differed by *clinic ownership model* [p = .015, Monte Carlo estimate of Fisher's exact P-value].

Specifically, proportionally more respondents from university owned clinics reported that their clinic had BHCI usually provided by qualified (i.e., licensed) mental health providers (QMHP; e.g., psychologists, counselors, clinical social workers, marriage and family therapists, etc.; See Table 6). Respondents from privately owned clinics were least likely to report having behavioral health counseling interventions provided by qualified mental health providers, but respondents from privately-owned clinics and publicly owned clinics were both equally likely for behavioral health counseling interventions to be provided by PCPs (See Table 6).

Table 6.

Crosstabs Table for Behavioral Health Counseling Interventions (item 16) by Clinic Ownership Model

	Behavioral Health Counseling Interventions (the frequency and quality of mental counseling interventions provided)					
Ownership Model	BHCI are not provided	BHCI are rarely provided by PCPs	BHCI may be provided by PCPs	BHCI are usually provided by PCPs	BHCI are usually provided by QMHPs	N
Privately Owned	8.1%	7.0%	20.9%	62.8%	1.2%	86
Hospital Owned	9.7%	6.5%	12.9%	51.6%	19.4%	31
University Owned	16.7%	16.7%	0.0%	33.3%	33.3%	6
Publicly Owned	0.0%	0.0%	25%	62.5%	12.5%	8
Totals	*8.4%*	*6.9%*	*18.3%*	*58.8%*	*7.6%*	*131*

Hypothesis 2 – Part 6 (Level of Collaboration and Clinic Type)

Supporting the sixth part of the second hypothesis involved examination of the relationship between *current level of collaboration* and *clinic type*. One hundred thirty Fisher exact tests for independence were performed to determine the significance of the relationships between these variables. An additional 13 tests were performed to examine the relationship

between the 13 survey items representing *current level of collaboration* and a variable that aggregates five clinic types that commonly represent community health clinics (i.e., community health center, free clinic, public health clinic, FQHC, FQHC look-alike, and rural health clinic).

For-profit clinics. Of the 13 relationships tested between the *current level of collaboration* and *for-profit clinics*, 5 were found to be significant (i.e., with Physical Proximity, Temporal Proximity, Mental Health Counseling Interventions, Behavioral Health Counseling Interventions, and Level of Mental Health Expertise Among Providers; See Table 7)

Nonprofit clinics. Of the 13 relationships tested between the items representing *current level of collaboration* and the item representing *nonprofit clinics* (versus all clinics not identified as "nonprofit"), 2 were found to be significant (i.e., with Mental Health Referral Practices and Mental Health Counseling Interventions; See Table 8).

Training clinics. Of the 13 relationships tested between the items representing *current level of collaboration* and the item representing *training clinics* (versus all clinics not identified as a "training clinic"), 3 were found to be significant (i.e., with Mental Health Counseling Interventions, Behavioral Health Counseling Interventions, and the percentage of patients for which primary care providers consulted with mental health providers; See table 9).

Walk-in/urgent care clinics. Of the 13 relationships tested between the items representing *current level of collaboration* and the item representing *walk-in/urgent care clinics* (versus all clinics not identified as "walk-in/urgent care clinics"), 1 was found to be significant (i.e., Pharmacological Interventions; See Table 10).

Community health centers. Of the 13 relationships tested between the items representing *current level of collaboration* and the item representing *community health centers* (versus all clinics not identified a "community health center"), 2 were found to be significant

(i.e., Mental health provider communicates about diagnosis, medical history, and/or ongoing treatment planning and Mental Health Counseling Interventions; See Table 11).

FQHCs. Of the 13 relationships tested between the items representing *current level of collaboration* and the item representing *FQHCs* (versus all clinics not identified as an "FQHC"), 3 were found to be significant (Physical Proximity, Mental Health Counseling Interventions, and the degree to which a clinic's name and signage is related to the name and signage of the primary care clinic; See Table 12).

Community health clinics (aggregate). The *community health clinics (aggregate)* variable combines five clinic types that often serve a public health/safety-net function in a variety of communities (i.e., community health center, free clinic, public health clinic, FQHC, FQHC look-alike, and rural health clinic). Of the 13 relationships tested between the items representing *current level of collaboration* and the item representing *Community Health Clinics (Aggregate),* 4 were found to be significant (i.e., Physical Proximity, Temporal Proximity, Pharmacological Interventions, and Mental Health Counseling Interventions; See Table 13).

Table 7.

Significant Relationships Between the Current Level of Collaboration and For-Profit Clinics.

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Physical Proximity (Item 11)	p = .027	Fewer respondents from for-profit clinics reported having a behavioral health provider located within the same office (4.1% of for-profit clinics versus 22.9% of other clinics).
Temporal Proximity (Item 12)	p = .011	Fewer respondents from for-profit clinics reported having wait times between referral and appointment longer than one month (28% of for-profit clinics versus 41.2% of other clinics). Fewer respondents from for profit clinics reported that their clinics had wait times of less than one day (0% of for-profit clinics versus 8.8% of other clinics).
Mental Health Counseling Interventions (MHCI; Item 15)	P = .001	Fewer respondents from for-profit clinics reported having mental health interventions provided by QMHPs (6.1% in for-profit clinics versus 34.3% in other clinics).
Behavioral Health Counseling Interventions (BHCI; Item 16)	P = .005	Fewer respondents from for-profit clinics reported having behavioral health interventions provided by QMHPs (3.1% in for-profit clinics versus 22.9% in other clinics).
Level of mental health expertise among providers (Item 17)	P = .031	Fewer respondents from for-profit clinics reported having extensive mental health expertise (6.3% in for-profit clinics versus 25.7% in other clinics).

Table 8.

Significant Relationships Between the Current Level of Collaboration and Nonprofit Clinics.

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Mental Health Referral Practices (Item 13)	p = .046	More respondents working in nonprofit clinics reported that their clinic could treat all mental health concerns within their clinic (26.7% of nonprofit clinics versus 7.0% of other clinics).
Mental Health Counseling Interventions (Item 15)	p = .003	More respondents working in nonprofit clinics reported that their clinic had mental health interventions provided by qualified mental health providers than other clinics (40.0% of nonprofit clinics versus 10.0% of other clinics).

Table 9.

Significant Relationships Between the Current Level of Collaboration and Training Clinics.

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Mental Health Counseling Interventions (Item 15)	p = .001	More respondents working in nonprofit clinics reported that their clinic could treat all mental health concerns within their clinic (26.7% of nonprofit clinics versus 7.0% of other clinics).
Behavioral Health Counseling Interventions (Item 16)	p = .014	More respondents working in training clinics reported that BHCIs were usually provided by QMHPs (60.2% of nonprofit clinics versus 33.3% of other clinics).
Percentage of patients for which primary care providers consulted with mental health providers (item 18)	p = .033	More respondents working in training clinics reported that primary care providers consulted with qualified mental health providers for more than 25% of patients (55.5% of nonprofit clinics versus 17.6% of other clinics).

Table 10.

Significant Relationships Between the Current Level of Collaboration and Walk-In/Urgent Care Clinics.

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Pharmacological Interventions (Item 14)	p = .014	Respondents working in walk-in/urgent care clinics reported that PCPs were proportionally less likely than in other clinics to provide pharmacological interventions (36.4% of walk-in/urgent care clinics versus 70.2% of other clinics).

Table 11.

Significant Relationships Between the Current Level of Collaboration and Community Health Centers.

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Mental health provider communicates about diagnosis, medical history, and/or ongoing treatment planning (item 8)	p = .018	Respondents working in community health centers were more likely (than non-community health centers) to report that their clinic received feedback from mental health providers for 75 – 100% of the patients that they refer for mental health treatment (42% of community health centers versus 11.8% of non-community health centers).
Mental Health Counseling Interventions (MHCI; item 15)	p = .031	More respondents working in community health centers reported that MHCIs were usually provided by QMHPs (42.9% of nonprofit clinics versus 17.1% of other clinics). Fewer respondents working in community health centers reported that MHCIs were usually provided by PCPs (0% of nonprofit clinics versus 24.6% of other clinics).

Table 12.

Significant Relationships Between the Current Level of Collaboration and FQHCs.

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Physical Proximity (item 11)	p = .014	FQHCs were more likely than other clinics to have a behavioral health provider located within the same office (41.7% of FQHCs versus 5.8% of other clinics). FQHCs were less likely than other clinics for the mental health provider to which they most often refer to be located greater than a 15 minute drive (25% of FQHCs versus 52.9% of other clinics).
Mental Health Counseling Interventions (MHCI; item 15)	p = .007	More respondents working in FQHCs reported that mental health counseling interventions were usually provided by qualified mental health providers (50% of FQHCs versus 9.9% of other clinics) Fewer respondents working in FQHCs reported that mental health counseling interventions were usually provided by PCPs (8.3% of FQHCs versus 24.8% of other clinics).
The degree to which a clinic's name and signage is related to the name and signage of the primary care clinic (item 20)	p = .022	Respondents working in FQHCs reported proportionally more often than those reporting about other clinic types that their mental health services were either minimally distinct from (16.7% of FQHCs versus 2.6% of other clinics) or indistinguishable from (25% of FQHCs versus 10.5% of other clinics 25%) primary care services own name and signage.

Table 13.

Significant Relationships Between the Current Level of Collaboration and Community Health Clinics –Aggregate (CHCs).

Significant relationship	Monte Carlo estimate of Fisher's exact p-value	Description of relationship
Physical Proximity (Item 11)	p = .034	CHCs were more likely than other clinics to have a behavioral health provider located within the same office (25% of CHCs versus 4.8% of other clinics).
Temporal Proximity (Item 12)	p = .011	More respondents from CHCs reported having wait times between referral and appointment shorter than one day than other clinics (10.7% of CHCs versus 0% of other clinics). More respondents from CHCs reported having wait times between referral and appointment longer than one month than other clinics. (42.9% of CHCs versus 28.3% of other clinics).
Pharmacological Interventions (Item 14)	p = .034	Respondents working in CHCs reported that QHMPs were proportionally more likely than in other clinics to provide pharmacological interventions (21.4% of CHCs versus 3.8% of other clinics). Respondents working in CHCs reported that PCPs were proportionally less likely than in other clinics to provide pharmacological interventions (53.6% of CHCs versus 71.2% of other clinics).
Mental Health Counseling Interventions (Item 15)	p = .005	More respondents working in CHCs reported that mental health counseling interventions were usually provided by QMHPs (35.7% of CHCs versus 7.6% of other clinics) Fewer respondents working in CHCs reported that mental health counseling interventions were usually provided by PCPs (10.7% of CHCs versus 26.7% of other clinics).

Hypothesis 2 – Part 7

Supporting the seventh part of the second hypothesis involved determining the relationship between the *current level of collaboration* and *rurality*. Thirteen Fisher exact tests for independence were used to determine the significance of the relationship between these variables

One of the 13 relationships examined in these analyses was found to be significant. This analysis showed that the *degree to which a clinic's staff referred to mental health services as a separate program* (item 19) differed by the variable representing *rurality* (MSA; p = .007, Monte Carlo estimate of Fisher's exact p-value). Specifically, the analysis showed respondents working in MSAs reported proportionally more often than those reporting about other clinic types that they *rarely* or *never* (21.9% of clinics in MSAs versus 5.9% of clinics in non-MSAs) referred to mental health services as a separate program.

Hypothesis 3

Hypothesis 3 – Part 1

Supporting the first part of the third hypothesis involved determining the impact of *clinic type* on the relationship between *current level of collaboration* and *barriers to collaboration*. These relationships were examined in three different ways: 1) with *clinic type* defined by the variable representing *ownership model*, 2) with *clinic type* defined by a variable representing *for-profit vs. nonprofit clinics*, and 3) with *clinic type* being defined by a variable representing *public health/community health clinics vs. nonpublic health/community health clinics.*

For the first analysis the Spearman rank correlation was then used to determine the relationship between the 13 items representing *current level of collaboration* and the three items representing *barriers to collaboration* by *ownership model*. Of the 156 relationships tested in

this analysis 15 were found to be significant (For significant relationships see Tables 14, 15, and 16).

Table 14.

Spearman Correlation Results: Organizational Barriers and Level of Collaboration by Ownership Model (Significant Results Only)

	Ownership Model							
Level of Collaboration (Item #)	Privately Owned		Hospital Owned		University Owned		Publicly Owned	
	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.
MHP communicates feedback to PCP – Treatment planning (Item 8)					.820* (.046)	4	-.771* (.025)	6
PCP communicates with MHC – Treatment planning (Item 9)							-.771* (.025)	6
MHP communicates feedback to PCP – Missed appointments (Item 10)							-.884 (.047)	3
Time between referral and initial appt. (Item 12)	-.251* (.028)	75	-.460* (.014)	26	-.164* (.756)	4		
MH Expertise among PCPs (Item 17)			-.393* (.035)	27	.889* (.018)	4		
PCPs Consult with MHPs (Item 18)							-.771* (.025)	6

Table 15.

Spearman Correlation Results: Fiscal Barriers and Level of Collaboration by Ownership Model (Significant Results Only)

Level of Collaboration (Item #)	Ownership Model							
	Privately Owned		Hospital Owned		University Owned		Publicly Owned	
	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.
MHP communicates feedback to PCP – Missed appointments (Item 10)							-.918* (.028)	3
Physical proximity of MH services (Item 11)							-.784* (.021)	6
Time between referral and initial appt. (Item 12)	-.231* (.046)	73	-.439* (.022)	26	.874* (.023)	4		

Table 16.

Spearman Correlation Results: Training Barriers and Level of Collaboration by Ownership Model (Significant Results Only)

Level of Collaboration (Item #)	Ownership Model							
	Privately Owned		Hospital Owned		University Owned		Publicly Owned	
	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.
Availability of mental health counseling interventions (Item 15)	.255* (.021)	80						

For the second analysis, the Spearman rank correlation was used to determine the relationship between the 13 items representing *current level of collaboration* and the three items representing *barriers to collaboration* by *clinic type.* Of the 78 relationships tested in this analysis 6 were found to be significant (For significant relationships see Tables 17, 18, and 19).

Table 17.

Spearman Correlation Results: Organizational Barriers and Level of Collaboration by Nonprofit/For-Profit Status (Significant Results Only)

	Clinic Type			
Level of Collaboration (Item #)	Nonprofit		For-Profit	
	ρ (sig.)	df.	ρ (sig.)	df.
Time between referral and initial appt. (Item 12)			-.332* (.002)	85

Table 18.

Spearman Correlation Results: Fiscal Barriers and Level of Collaboration by Nonprofit/For-Profit Status (Significant Results Only)

	Clinic Type			
Level of Collaboration (Item #)	Nonprofit		For-Profit	
	ρ (sig.)	df.	ρ (sig.)	df.
Time between referral and initial appt. (Item 12)			-.287* (.008)	83
Staff refer to MH services as a separate program (Item 19)	-.648* (.017)	11		

Table 19.

Spearman Correlation Results: Training Barriers and Level of Collaboration by Nonprofit/For-Profit Status (Significant Results Only)

	Clinic Type			
Level of Collaboration (Item #)	Nonprofit		For-Profit	
	ρ (sig.)	df.	ρ (sig.)	df.
Mental Health Counseling Interventions (Item 15)	-.647* (.017)	11	.236* (.024)	89
Behavioral Health Counseling Interventions (Item 16)	.589* (.034)	11		

For the third analysis the Spearman rank correlation was the used to determine the relationship between the 13 items representing *current level of collaboration* and the three items representing *barriers encountered in starting current level of collaboration* by *clinic type.* Of the 78 relationships tested in this analysis 10 were found to be significant (For significant relationships see Tables 20, 21, and 22).

Table 20.
Spearman Correlation Results: Organizational Barriers and Level of Collaboration by Public Health/Community Health Clinics vs. Nonpublic Health/Community Health Clinics (Significant Results Only)

Level of Collaboration (Item #)	Clinic Type			
	Public Health/Community Health Clinics		Nonpublic Health/Community Health Clinics	
	ρ (sig.)	df.	ρ (sig.)	df.
PCP talks to MHP about treatment (Item 8)	-.398 (.040)	25		
MHP talks with PCP about treatment (Item 9)	-.599 (.001)	25		
MHP talks with PCP about missed appointments (Item 10)	-.678 (.001)	20		
Distance between PCP and MHP offices (Item 11)	-.440 (.022)	25		
Time between referral and initial appt. (Item 12)	-.617 (.001)	25	-.249* (.016)	91
Use of mental health counseling interventions (Item 15)			.212 (.035)	97
% of patients for which PCPs consult with MHPs (Item 18)	-.672 (<.001)	25		

Table 21.
Spearman Correlation Results: Fiscal Barriers and Level of Collaboration by Public Health/Community Health Clinics vs. Nonpublic Health/Community Health Clinics (Significant Results Only)

	Clinic Type			
Level of Collaboration (Item #)	Public Health/Community Health Clinics		Nonpublic Health/Community Health Clinics	
	ρ (sig.)	df.	ρ (sig.)	df.
Time between referral and initial appt. (Item 12)			-.309 (.003)	88

Table 22.
Spearman Correlation Results: Training Barriers and Level of Collaboration by Public Health/Community Health Clinics vs. Nonpublic Health/Community Health Clinics (Significant Results Only)

	Clinic Type			
Level of Collaboration (Item #)	Public Health/Community Health Clinics		Nonpublic Health/Community Health Clinics	
	ρ (sig.)	df.	ρ (sig.)	df.
Mental Health Counseling Interventions (Item 15)			.211* (.039)	94

Hypothesis 3 – Part 2

Supporting the second part of the third hypothesis involved examination of the impact of *rurality* on the relationship between *current level of collaboration* and *barriers to collaboration*. In this analysis, *rurality* was defined by the dichotomous variable MSA vs. Non-MSA that represents whether a clinic was in a metropolitan statistical area or a nonmetropolitan statistical

area. For this analysis the Spearman rank correlation was then used to determine the relationship between the 13 items representing *current level of collaboration* and the three items representing *barriers to collaboration* by *rurality*. Of the 78 relationships tested in this analysis 6 were found to be significant (For significant relationships see Tables 23, 24, and 25).

Table 23.

Spearman Correlation Results: Organizational Barriers and Level of Collaboration by MSA/Non-MSA Status (Significant Results Only)

	Rurality			
Level of Collaboration (Item #)	MSA		Non-MSA	
	ρ (sig.)	df.	ρ (sig.)	df.
Time between referral and initial appt. (Item 12)	-.305* (.011)	66	-.345* (.019)	44
Behavioral Health Counseling Interventions (Item 16)	-.241* (.040)	71		

Table 24.

Spearman Correlation Results: Fiscal Barriers and Level of Collaboration by MSA/Non-MSA Status (Significant Results Only)

	Rurality			
Level of Collaboration (Item #)	MSA		Non-MSA	
	ρ (sig.)	df.	ρ (sig.)	df.
Physical proximity of MH services (Item 11)			-.335* (.030)	40
Time between referral and initial appt. (Item 12)			-.385* (.012)	40

Table 25.

Spearman Correlation Results: Training Barriers and Level of Collaboration by MSA/Non-MSA Status (Significant Results Only)

	Rurality			
Level of Collaboration (Item #)	MSA		Non-MSA	
	ρ (sig.)	df.	ρ (sig.)	df.
Mental Health Counseling Interventions (Item 15)	.302* (.010)	70		

Hypothesis 3 – Part 3

Supporting the third part of the third hypothesis involved examining the impact of *clinic size* on the relationship between *current level of collaboration* and *barriers encountered in*

initiating current level of collaboration. For this analysis, the Spearman rank correlation was used to determine the relationship between the 13 items representing *current level of collaboration* and the three items representing *barriers encountered in starting current level of collaboration* by *clinic size* (i.e., 1 = Single-Handed Clinics; 2-3 = Small Clinics; 4-5 = Medium Clinics; and 6 < = Large Clinics). Of the 156 relationships tested in this analysis 9 were found to be significant (For significant relationships see Tables 26, 27, and 28).

Table 26.

Spearman Correlation Results: Organizational Barriers and Level of Collaboration by Clinic Size (Significant Results Only)

	Clinic Size							
Level of Collaboration (Item #)	Single Handed		Small		Medium		Large	
	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.
Time between referral and initial appt. (Item 12)	-.378* (.027)	30						
Medical and mental health complexity treated (Item 13)							-.423* (.040)	20
PCPs Consult with MHPs (Item 18)							-.439* (.036)	19
Staff refer to MH services as a separate program (Item 19)							-.445* (.038)	18

Table 27.

Spearman Correlation Results: Fiscal Barriers and Level of Collaboration by Clinic Size (Significant Results Only)

	Clinic Size							
Level of Collaboration (Item #)	Single Handed		Single Handed		Single Handed		Single Handed	
	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.
Physical proximity of MH services (Item 11)					-.218* (.010)	17		
Pharmacological interventions (Item 14)			-.341* (.039)	33				
MH Expertise among PCPs (Item 17)							-.439* (.036)	19

Table 28.

Spearman Correlation Results: Training Barriers and Level of Collaboration by Clinic Size (Significant Results Only)

	Clinic Size							
Level of Collaboration (Item #)	Single Handed		Single Handed		Single Handed		Single Handed	
	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.	ρ (sig.)	df.
Behavioral Health Counseling Interventions (Item 16)							-.427* (.037)	20
PCPs Consult with MHPs (Item 18)					.531* (.008)	20		

Hypothesis 4

Supporting the fourth hypothesis involved determining whether there was a difference between clinics' *current levels of collaboration* and *ideal levels of collaboration.* To test this hypothesis, 13 sign tests were performed— one comparing *current level* and *ideal levels of collaboration* for each of the 13 items representing level of collaboration. Sign tests were chosen for these analyses because they can compare levels of nonparametric ordinal variables between two paired samples. Of the 13 relationships tested in this analysis 10 were found to be significant (For significant relationships see Table 29). All 10 significant relationships showed that generally respondents reported that their ideal level of collaboration was greater than their current level of collaboration. For the four nonsignificant relationships generally respondents reported that their ideal level of collaboration was equal to their current level of collaboration.

Table 29.

Sign Test Results: Current Level of Collaboration Compared with Ideal Level of Collaboration

Item	Negative Ranks *(Wants less collaboration)*	Positive Ranks *(Wants more collaboration)*	Ties *(Satisfied with current collaboration)*	Total	Z	Significance *(P)*
8	1	106	28	135	-8.835*	<.001
9	1	109	25	135	-9.010*	<.001
10	0	96	20	116	-8.607*	<.001
11	0	51	82	133	-7.141*	<.001
12	0	42	84	133	-6.481*	<.001
13	11	18	101	130	-0.659	.510
14	17	28	88	133	-2.009*	.045
15	8	68	57	133	-6.605*	<.001
16	6	43	82	131	-4.846*	<.001
17	3	63	64	130	-6.976*	<.001
18	3	100	28	131	-8.744*	<.001
19	23	31	75	129	-1.749	.080
20	19	30	77	126	-1.870	.061

Hypothesis 5

Hypothesis 5 – Part 1

Supporting the first part of the fifth hypothesis involved determining how *interest in having a higher level of collaboration* is related to *clinic type.* Initially the 13 items representing *current level of collaboration* were compared with the 13 items representing *ideal level of collaboration*. Thirteen new variables were created (one for each item) representing clinics' *interest in having a higher level of collaboration.* The values for the newly created variables are as follows: If *current level of collaboration* less than *ideal level of collaboration* = *Interested in increased in collaboration* (3); If *current level of collaboration* is equal to *ideal level of collaboration* = *Satisfied with current collaboration* (2); and If *current level of collaboration* is equal to *ideal level of collaboration* = *Interested in decreased collaboration* (1). One hundred fifty-six Fisher exact tests for independence were used to determine the significance of the relationship between *clinic type* to *interest in having a higher level of collaboration*. Of the 156 analyses run to test hypothesis 12, 8 were found to be significant (See Table 30).

Table 30.

Significant Relationships Between the Clinic Type and Interest in Having a Higher Level of Collaboration

Significant relationship		Monte Carlo est. of Fisher's exact p	Description of relationship
Clinic Type	Aspect of Collaboration		
Ownership Models	Mental Health Referral Practices (Item 13)	p = .045	Publicly owned practices were least likely to report wanting an increase in collaboration (13.3%) and were most likely to report wanting a decrease in collaboration (9.6%)
Nonprofit clinics	Physical Proximity (Item 11)	p = .024	Nonprofit clinics were proportionally more likely than other clinic types to want to increase their level of collaboration to have a BHP working within their office (66.7% vs. 35%).
Training Clinics	Mental Health Counseling Interventions (Item 15)	p = .029	Respondents working in training clinics were more likely to be satisfied with the mental health counseling interventions that are provided in their clinic (77.8% vs.40.7%) and were less likely to want to increase the level of collaboration (11.1% vs. 53.7%) than other clinics.
Walk-in/ Urgent Care Clinics	Pharmacological Interventions (Item 14)	p = .008	Respondents working in walk-in/urgent care clinics were less likely than those in other clinics to be satisfied with the psychopharmacological interventions that are provided in their clinic (36.4% vs. 68.6%) and were more likely to want to decrease the level of collaboration (45.5% vs. 9.9%)
Community Health Centers	Physical Proximity (Item 11)	p = .013	Respondents working in community health centers were proportionally more likely than those working in other clinic types to want to increase their level of collaboration to have a BHP working within their office (85.7% vs. 36%).

Table 30 (Continued).

Community Health Centers	Temporal Proximity (Item 12)	p = .042	Respondents working in community health centers were proportionally more likely than those working in other clinic types to want to increase their level of collaboration to have a same day mental health appointments (71.4% vs. 31.4%).
Community Health Centers	Staff referring to mental health services as a separate/same program (Item 19)	p = .015	Respondents working in community health centers were proportionally were proportionally more likely than those working in other clinics to want to increase their collaboration level to not refer to medical and mental health services as separate programs (71.4% vs. 21.5%) and non-community health centers were more likely to be satisfied their current level of collaboration (59.5% vs. 28.6%).
Rural Health Clinics	Name and Signage (Item 20)	p = .049	Respondents working in rural health clinics were proportionally more likely than those working in other clinics to want to increase their collaboration level to have less distinction between name and signage of the PCP clinic and mental health services (50% vs. 21.7%) and non-community health centers were more likely to be satisfied their current level of collaboration (63.5% vs. 30%).
Community Health Clinics - Aggregate	Staff referring to mental health services as a separate/same program (Item 19)	p = .049	Respondents working in community health clinics were proportionally more likely than those working in other clinics to want to increase their collaboration level to not refer to medical and mental health services as part of the same program (40.7% vs. 19.8%).

Hypothesis 5 – Part 2

Supporting the second part of the fifth hypothesis involved determining how *interest in having a higher level of collaboration* is related to *rurality.* Thirteen Fisher exact tests for independence were used to determine the significance of the relationship between *rurality* and *interest in having a higher level of collaboration*.

Of the 13 relationships tested in this analysis, 1 was found to be significant. This analysis showed that *the percentage of patients for which a PCP communicated with a BHP* (item 9)

significantly differed depending on whether or not clinics were identified as *rural* (i.e., MSA vs. non-MSA; p = .013, Monte Carlo estimate of Fisher's exact p-value). Specifically, the results showed that respondents working in clinics in non-MSAs (rural clinics) were more likely than those working in clinics in MSAs (urban clinics) to want to increase the percentage of patients for which the mental health provider communicates with them about diagnosis, medical history, and/or ongoing treatment planning (90.2% vs. 73.5%). Further, respondents working in MSAs (urban clinics) were proportionally more likely than those working in clinics non-MSAs (rural areas) to be satisfied with their current level of collaboration (24.7% vs. 7.8%).

Hypothesis 5 – Part 3

Confirming the third part of the fifth hypothesis involved determining how *interest in having a higher level of collaboration* is related to *clinic size.* Thirteen Fisher exact tests for independence were used to determine the significance of the relationship between *clinic size* and *interest in having a higher level of collaboration*.

Of the 13 relationships tested in this analysis, 2 were found to be significant. The first significant analysis showed that the percentage of patients for which a *BHP communicated with the PCP about missed appointments* (item 9) significantly differed depending on *clinic size* (p = .003, Monte Carlo estimate of Fisher's exact p-value). Specifically, the results showed that respondents working in small clinics were proportionally more likely than those working in clinics of other sizes to want to increase the percentage of patients for which they receive feedback from mental health providers about missed appointments (97.4% vs. Single handed clinics = 67.7%; Medium Clinics = 85.7%; and Large Clinics = 76.2%).

The second significant analysis showed that a clinic's *interest in having a higher degree of collaboration in regards the mental health services' physical location* (item 11) significantly

differed depending on whether or not clinics were identified as *community health centers* (p = .011, Monte Carlo estimate of Fisher's exact p-value). Specifically, the results showed that respondents working in large clinics were proportionally more likely than those working in other clinic types to want to increase their level of collaboration to have a BHP working within their office (66.7% vs. Single handed clinics = 24.3%; Small Clinics = 36.4%; and Medium Clinics = 37.5%).

CHAPTER 4

DISCUSSION

Though decades of research have shown significant advantages to primary care behavioral health (PCBH) collaboration, barriers continue to impede its uptake. The current study was an examination of the overall uptake of PCBH collaboration in Appalachian Tennessee and provides nuanced data that could help inform the decisions of policymakers working in the region. Further, this study provides policymakers and researchers in other regions of the U.S. with a methodology for obtaining baseline data regarding local trends in PCBH collaboration. In the following pages, I: 1) review the results of the present study and discuss their implications for regional and national policy decisions and 2) discuss the value of the current methodology in terms of its use for future research.

Measuring PCBH Collaboration

Results from this study provide a baseline measurement of PCBH collaboration in Appalachian Tennessee and show that overall a minority of clinics in the region are currently engaging in moderate to high levels of collaboration (e.g., colocated and integrated models of care). The results show that only about one fifth of participating clinics were at least providing "colocated" services (i.e., had a behavioral health provider working on site) and less than one eighth of clinics were providing "fully integrated" services. These data provide a point-in-time view of PCBH collaboration that shows that significant work is still needed (e.g., region-wide policy changes and targeted implementation efforts) for high levels of PCBH collaboration to become ubiquitous in primary care practices throughout the region.

As policy changes and implementation efforts continue to develop in support of PCBH collaboration, these data (in combination with follow-up studies of similar design) could be

valuable as a means of evaluating the effectiveness of such efforts over time. As such, the present survey and its accompanying method for data collection could serve as useful tools for researchers and policymakers in other regions of the country interested in: 1) gauging subtleties in the uptake of PCBH collaboration in their region and 2) measuring the effectiveness of ongoing policy changes and implementation efforts.

A Closer Look at Collaboration in Appalachian Tennessee

A more nuanced look at this study's findings reveals significant differences in collaboration depending on clinic type. For example, nearly half of the community health clinics responding in this study (i.e., community health centers, free clinics, public health clinics, FQHCs, FQHC look-alikes, and rural health clinics) reported providing either colocated or integrated services (in comparison to only about one fifth of clinics overall). For-profit clinics (e.g., many private practice clinics and hospital owned clinics), on the other hand, were more likely than other clinics (e.g., nonprofit clinics and community health clinics) to be engaging solely in lower level models of collaboration (e.g., screening, brief intervention, and/or referral administered by PCP).

It is unclear how these patterns of PCBH collaboration uptake compare to other regions of the country. Though several previous studies have attempted to evaluate this phenomenon [e.g., Brazeau, Rovi, Yick, & Johnson (2005) measured the uptake PCBH collaboration in family medicine practices in New Jersey and Sanchez, Thompson, and Alexander (2010) measured PCBH collaboration uptake in publicly funded clinics in Texas], the low number of such studies, the discrepant data between these studies, and the limited scope of these studies (especially in terms of evaluating a variety of clinic types) makes it difficult to draw comparisons with these data. Such problems in comparing the available data between (and even within) regions on the

United States further underscores the importance of developing and using standardized research methods and criteria in measuring PCBH collaboration. Because of its focus on a wide range of clinic types and its regional adaptability, the current study and its accompanying methodology could serve as a starting point for such standardization.

Why Does Collaboration Differ by Clinic Type?

National and Regional Factors

Over the past several years a surge of federal and state funding has made available significant support for "safety-net" programs that provide services to uninsured and Medicaid patients (e.g., community health clinics and FQHCs; Zuckerman & Goin, 2012). In fact, since 1996 federal funding for FQHCs has increased from about 750 million dollars to over 2.2 billion dollars (Katz, Felland, Hill, & Stark, 2011). Many of these funding increases have incentivized the use of programs such as the Patient Centered Medical Home (PCMH) and Screening, Brief Intervention, and Referral to Treatment (SBRIT) programs that involve varying levels of PCBH collaboration. The Health Resources and Services Administration (HRSA), the Substance Abuse and Mental Health Services Administration (SAMHSA), and provisions of the Affordable Care Act (ACA) have all played major roles in supporting PCMH, SBI, SBIRT, colocation, and integration in community health clinics around the country (Centers for Medicare and Medicaid Services, n.d.). For example, in July 2014 HRSA announced $54.6 million dollars in funding for 221 primary care organizations across the United States to fund the use of SBIRT services and support the hiring of new behavioral health staff (U.S. Department of Health and Human Services, 2014). As such, this recent federal focus on PCBH collaboration in community health clinics is likely one reason why these clinics were found to be engaging in high levels of collaboration.

Regional factors may have also contributed to this discrepancy. For example, in 2006 Tennessee began restructuring its Medicaid (TennCare) program. These efforts were aimed at doing away with "carved out" behavioral health services in favor of a "carved in" model where TennCare's managed care organizations (MCOs) were responsible for covering both medical and behavioral health services. This and other policy changes that have occurred over the past several years (e.g., unlocking SBIRT codes; allowing for same-day billing; FQHCs being allowed to provide behavioral health services without being licensed as a community mental health center; etc.) helped pave the way for increased integration and colocation of primary care and behavioral health services especially among those clinics that serve a significant number of TennCare patients (such as community health clinics and FQHCs; Takach, Purington, & Osius, 2010).

Through use of these federal and state incentives many community health clinics have been able to initiate higher levels of PCBH collaboration with minimal financial risk. In the current healthcare reimbursement climate, however, other clinics (e.g., private practice clinics and hospital owned clinics) have been less likely to have access to such incentives. In addition, recent funding changes associated with the Affordable Care Act and other national legislation efforts have resulted in significant cuts to certain high yield healthcare programs (e.g., cuts in reimbursement rates for hospital based procedures; Mulvany, 2010). As such, even clinics and/or organizations interested in increasing their level collaboration may decide against it due to unrelated financial concerns and/or perceived volatility in national and regional healthcare reimbursement practices.

Low-Level Models of Collaboration

As a likely result of these concerns, in this study for-profit clinics (e.g., primarily private practice clinics and hospital owned clinics) were found to be more likely than other clinics (e.g., nonprofit clinics and community health clinics) to be engaging solely in lower level models of collaboration. Though low level models of collaboration can vary widely in their structure, they typically involve PCPs taking on the responsibility for providing routine mental and behavioral health assessments, providing brief interventions, and making specialty mental health referrals. While such models of PCBH collaboration are generally considered to have less upfront cost and financial risk and require less organizational change to implement than higher level models of collaboration, they typically require a significant time commitment from primary care providers (PCPs) that may be already overburdened with patient care and documentation responsibilities (Collins et al., 2010). Further, in low collaboration models that involve an off-site or different day referral, only about half of the patients show for initial behavioral health appointments, while nearly three quarters referred to a behavioral health provider in an integrated primary care setting attend their first appointment (e.g., Bartels, Coakley, Zubritsky, et al., 2004). Despite the significant drawbacks associated with the sole use of lower level models of collaboration (and despite a general interest in increasing their levels of collaboration), many for-profit clinics in the region continue to commonly engage solely in lower level models of collaboration.

Increasing PCBH Collaboration

Though for profit clinics generally reported an interest in increasing their current level of collaboration, nonprofit clinics and community health clinics were the most likely to want to do so. Nonprofit clinics and community health centers, for example, were more likely than other clinics to want to increase their level of collaboration to have a BHP working within their office.

Further, community health centers were more likely than other clinics to want same day behavioral health appointments. These findings were somewhat surprising given that community health clinics already have some of the highest levels of PCBH collaboration in the region. These findings, however, may underscore the importance of direct experience with integrated and colocated models of care in recognizing its value. As such, PCBH dissemination efforts may be well directed at primary care provider training programs (i.e., medical schools, residency programs, and nursing programs) to give new providers definitive experiences with higher levels of collaboration early in their careers. The hope then would be that when these "experienced" providers begin working in practices of their own that they will view high leveled PCBH collaboration as indispensable.

Barriers to PCBH Collaboration in Appalachian Tennessee

This study also examined the role that barriers play in determining clinics' levels of collaboration in Appalachian Tennessee. In contrast to our original hypotheses, we found few significant relationships between level of PCBH collaboration and barriers to collaboration. When we examined these relationships by clinic type, however, we found that certain barriers did seem to negatively impact the use of PCBH collaboration, specifically in community health clinics (but not other clinics). These results showed that the more organizational barriers (e.g., problems with referral practices, billing practices, scheduling practices, and patient flow) that respondents working in community health clinics reported, the lower the clinic's level of collaboration.

Given the inconsistent effect that organizational barriers have on collaboration across clinic types, it is likely that a variable unaccounted for in this study is responsible for moderating the relationship between organizational barriers and clinic type. As previously discussed, there

has been a significant recent increase in financial and policy incentives provided for community health clinics engaging in various models of PCBH collaboration. It is possible, therefore, that such incentives are responsible for moderating the relationship between organizational barriers and clinic type. In other words, organizational barriers do not impact whether or not a clinic engages in moderate to high levels of collaboration unless financial and policy incentives are available. As such, dissemination efforts for moderate to high levels of PCBH collaboration are unlikely to be effective if they are solely targeted at individual clinics and/or organizations. However, dissemination efforts targeted at policy makers, payers, and MCOs could lead to systemic changes that involve financial and policy incentives that encourage a broader use of PCBH collaboration. Once these systemic dissemination strategies begin to yield results, attention may be shifted to disseminating implementation strategies at the clinic and organizational level that address clinic specific organizational barriers.

Policy Recommendations for Appalachian Tennessee

The findings of this study show that in Appalachian Tennessee policy change (e.g., changes in reimbursement patterns, increases in incentives, introduction of PCBH models in training programs) is likely one of the most important strategies that could be used to increase the uptake of PCBH collaboration in the region. While there has been significant policy change in the region over the past decade in regards to publicly funded clinics, insurance plans, and MCOs, the same cannot be said about private sector clinics, plans, and MCOs. Being that public sector policy changes seem to have led to increases in the uptake of PCBH collaboration in community health clinics, it is possible that similar private sector changes would result in increases in uptake in other clinics in the region. As such, we suggest that policymakers in Appalachian Tennessee consider working with insurance companies and MCOs to: increase

reimbursement rates for mental and behavioral health interventions provided in primary care; develop ways of incentivizing inter-professional communication; incentivize programs aimed at chronic disease management; and incentivize the collection of quality metrics related to chronic disease and behavioral health outcomes. Further, we suggest that policymakers and leaders in schools, accrediting bodies, and professional organizations encourage the use of higher levels of PCBH collaboration in provider training programs through: changes in curriculum that encourage interprofessional collaboration; changes in accreditation standards (e.g., requiring residency programs to have a behavioral health provider working on site); and changes in "best practice" documentation that includes high levels of PCBH collaboration.

The idea that policy changes may yield increases in PCBH collaboration uptake is not new. In fact, over the past decade there have been many papers written that include specific policy recommendations supporting PCBH collaboration (e.g., Brazelon Center for Mental Health Law, 2005; The Colorado Health Foundation, 2012; Department of Health and Human Services, 2011). For example, in 2004 the Brazelon Center hosted a roundtable meeting to discuss PCBH integration and private insurance. In this meeting, a list of policy change recommendations was developed, suggesting that insurers: fund PCBH demonstration projects; emphasize and standardize data collection and performance indicators; provide practitioners with data-driven feedback that will help guide ongoing quality improvement; fund services provided by mental health providers and care managers; offer incentives for using evidence-based chronic care programs (e.g., for diabetes, hypertension, depression, ADHD etc.); and fund other ancillary mental health preventative care services (Brazelon Center for Mental Health Law, 2005). More recently similar recommendations have been discussed in the context of the Affordable Care Act, Accountable Care Organizations (ACOs), and Patient Centered Medical Homes (PCMH; e.g.,

Centers for Medicare and Medicaid Services, n.d.). Though such policy recommendations are not new, this study provides indirect evidence that in Appalachian Tennessee their enactment in the public sector has likely led to increases in the overall uptake of PCBH collaboration among community health clinics. As private sector policy changes begin to take hold in the region, we believe that the present study and method could prove to be a highly valuable means of evaluating policy effectiveness over time both in Appalachia and in other regions of the U.S.

Limitations

Several limitations of the study's design make it important to interpret these findings with care. First, the limited response rate of the study (N=136; return rate of 23.8%) raises concerns about sampling biases. It is possible, for example, that only individuals who had strong opinions for or against PCBH collaboration chose to participate in the study. As such, some of the results reported in this study may have been exaggerated or skewed. Further, the study's limited response rate likely served to decrease the power of the analyses and therefore increase the possibility that significant results were overlooked.

Second, on the questionnaire respondents were encouraged to mark multiple items when indicating their clinic's type (for example, a single clinic could indicate being a nonprofit clinic, an FQHC, a community health center, and a walk-in clinic). This data collection strategy was used to ensure that all clinics were accurately described. In addition, however, this process resulted in an extremely high number of unique clinic categorizations. As such, direct comparisons between clinic categorizations were largely uninformative (because of the high number of clinic categories and the low number of clinics falling into each category). It was necessary, therefore, for comparisons to only be made between individual clinic types and "all other clinics" (for example, community health centers vs. "not community health centers"). As

such, many of the results regarding "clinic type" were complicated to interpret and were less meaningful than they would have been if direct comparisons were made.

Third, as a result of the above concern, a large number of analyses were needed to extract relevant data from the responses. Though it was possible to glean an abundance of nuanced information about PCBH collaboration from interpretation of the survey's responses, to ensure that information was meaningful, many hundreds of analyses were necessary. With this number of analyses, the chances of making a type 1 error were extremely high.

Finally, in regards to the method used, a single provider from each clinic was contacted to answer questions about the entire clinic. This method was chosen to ensure that all clinic types and sizes were represented proportionally to the population of clinics. However, especially in larger clinics, it is unclear whether the responses of the provider completing the survey were representative of those of other providers in the clinic (or of the organization as a whole). As such, the results of this study may have been markedly different had other providers within each of the responding clinics completed the survey.

Future Directions

Though the results of this study emphasize the importance policy change, we believe that clinic and organization level dissemination, implementation, and quality improvement strategies remain an important area for future research. As the findings of this study showed, organizational barriers were only important for clinic types that already had significant policy support (i.e., community health clinics). Being that the primary purpose of these strategies is to address barriers, it follows that dissemination, implementation, and quality improvement strategies will become increasingly important as the regional and national policy changes discussed above begin to take hold. As such, in addition to refining regional and national policy

change strategies, future research should focus on developing strategies for dissemination and implementation of PCBH models into a variety of clinic types. Limited efforts to this end are already underway [e.g., the learning collaborative (e.g., Breakthrough Collaborative; e.g., Vannoy et al., 2011); Evidence Based Quality Improvement (EBQI; e.g., Fortney et al, 2012); Translating Initiatives for Depression into Evidence-based Solutions (TIDES; Liu et al., 2008); the facilitation model (Kirchner et al., 2010); and Re-Engineering Systems for Primary Care Treatment of Depression (RESPECT-D; Dietrich et al., 2004)]; however, their focus has been primarily on larger organizations and health systems (often with significant grant funding). Further research in this area, therefore, should focus on dissemination, implementation, and quality improvement strategies aimed smaller privately funded nonprofit clinics and organizations interested in increasing their overall level of PCBH collaboration.

Conclusion

The present study is one of the first of its kind to provide a nuanced look at the uptake of PCBH collaboration in a wide range of clinics within a region of the United States. Overall, the findings of this study underscore the importance policy change (e.g., changes in reimbursement patterns, increases in incentives, introduction of PCBH models in training programs) in facilitating the uptake of high levels of PCBH collaboration in Appalachian Tennessee (especially in regards to nonpublicly funded clinics). The methodology used in this study could provide policymakers and researchers in other regions of the U.S. with a means for obtaining baseline data regarding local trends in PCBH collaboration and could serve as first step in developing a standardized methodology for comparing the overall uptake of PCBH collaboration models across regions.

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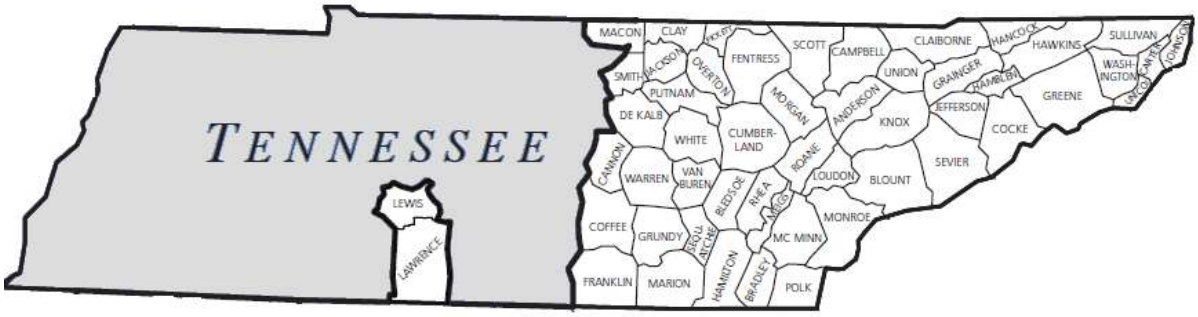
APPENDICES

APPENDIX A

Map of Counties in the Appalachian Region of Tennessee



Alphabetical listing of counties in the Appalachian region of Tennessee: Anderson, Bledsoe, Blount, Bradley, Campbell, Cannon, Carter, Claiborne, Clay, Cocke, Coffee, Cumberland, De Kalb, Fentress, Franklin, Grainger, Greene, Grundy, Hamblen, Hamilton, Hancock, Hawkins, Jackson, Jefferson, Johnson, Knox, Lawrence, Lewis, Loudon, McMinn, Macon, Marion, Meigs, Monroe, Morgan, Overton, Pickett, Polk, Putnam, Rhea, Roane, Scott, Sequatchie, Sevier, Smith, Sullivan, Unicoi, Union, Van Buren, Warren, Washington, and White (ARC, n.d.)

APPENDIX B

Telephone Script for Identifying Potential Participants

(Study staff calls primary care clinic)

Study staff says:

- **"Hi, I am (your name), a researcher with East Tennessee State University. I would like to confirm your MAILING address. Is it…….?"**
    - (Study staff reads mailing address and waits for clinic staff to respond. If clinic responds affirmatively, study staff proceeds to next question. If clinic staff responds negatively, study staff requests that study staff provide current mailing address and makes appropriate changes in database.)
- **"Does ___ (Read 1st Provider name)___ work in your clinic?** (If 1st provider does not work in clinic, proceed to next question.)
- **"Does ___ (Read 2nd Provider name)___ work in your clinic?**
    - (Record provider that works in clinic in database and delete providers that do not work at the clinic from database.)
- **"Thank you very much for your time! Have a great day!"** (study staff ends call)

APPENDIX C

Primary Care Survey

1. What is the zip code of the clinic in which you provide the majority of your services? _____

2. Which of the following models of ownership *best* describes the primary care practice in which you provide the majority of your clinical services (choose *one*)?

___ Privately owned
___ Hospital or healthcare organization owned
___ University owned
___ Publicly owned (nonuniversity)

3. Which of the following clinic types describes the primary care practice in which you provide the majority of your services (choose all that apply)?

___ For-profit clinic
___ Nonprofit clinic
___ Training clinic
___ Free clinic
___Walk-In/Urgent Care Clinic
___ Community Health Center (CHC)
___ Public Health Clinic (PHC)
___ Federally Qualified Health Center (FQHC)
___ FQHC Look-Alike
___ Rural Health Clinic (RHC)

4. What patient populations does the primary care clinic in which you provide the majority of your services serve (choose all that apply)?

___Children
___Adolescents
___Adults
___Older Adults

5. Including yourself, how many full-time equivalent *primary care* providers (e.g., M.D.'s, D.O.'s, N.P.'s, P.A.'s etc.) work within the primary care facility in which you provide the majority of your services? _____

6. How many primary *care providers* that work within the primary care facility in which you provide the majority of your services have the following credentials/education:

_____Medical Doctor
_____Doctor of Osteopathy
_____Nurse Practitioner
_____Physician's Assistant
_____Other (Please indicate _____)

7. How many full-time equivalent *mental or behavioral health* providers (e.g., psychologists, counselors, marriage and family therapists, clinical social workers etc.) work within the primary care facility in which you provide the majority of your services? _____

Item 8: Communication

The primary care provider communicates with a mental health provider about diagnosis, medical history, and/or ongoing treatment planning for:

Current

*Mark the item that best represents the **current** communication practices in your clinic.*

- ☐ 0% of referred patients
- ☐ 1-25% of referred patients
- ☐ 25-50% of referred patients
- ☐ 50-75% of referred patients
- ☐ 75-100% of referred patients

Ideal

*Mark the items that best represent the **ideal** communication practices in your clinic.*

- ☐ 0% of referred patients
- ☐ 1-25% of referred patients
- ☐ 25-50% of referred patients
- ☐ 50-75% of referred patients
- ☐ 75-100% of referred patients

How important is it that your clinic engages in the ideal communication practices that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 9: Communication

A mental health provider communicates feedback to the primary care provider about diagnosis and/or ongoing treatment planning for:

Current

*Mark the item that best represents the **current** communication practices in your clinic.*

- ☐ 0% of referred patients
- ☐ 1-25% of referred patients
- ☐ 25-50% of referred patients
- ☐ 50-75% of referred patients
- ☐ 75-100% of referred patients

Ideal

*Mark the items that best represent the **ideal** communication practices in your clinic.*

- ☐ 0% of referred patients
- ☐ 1-25% of referred patients
- ☐ 25-50% of referred patients
- ☐ 50-75% of referred patients
- ☐ 75-100% of referred patients

How important is it that your clinic engages in the ideal communication practices that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 10: Communication

A mental health provider communicates feedback to the primary care provider about missed mental health appointments for:

Current

*Mark the item that best represents the **current** communication practices in your clinic.*

- ☐ 0% of referred patients
- ☐ 1-25% of referred patients
- ☐ 25-50% of referred patients
- ☐ 50-75% of referred patients
- ☐ 75-100% of referred patients

Ideal

*Mark the items that best represent the **ideal** communication practices in your clinic.*

- ☐ 0% of referred patients
- ☐ 1-25% of referred patients
- ☐ 25-50% of referred patients
- ☐ 50-75% of referred patients
- ☐ 75-100% of referred patients

How important is it that your clinic engages in the ideal communication practices that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 11: Physical Proximity

The mental health services that I most often refer to are located:

Current

*Mark the item that best describes the **current** physical proximity of mental health services to your clinic.*

- ☐ In the same office
- ☐ In same building but different offices
- ☐ Less than 15 minute drive
- ☐ Greater than 15 minute drive
- ☐ Greater than an hour drive

Ideal

*Mark the items that best describe the **ideal** physical proximity of mental health services to your clinic.*

- ☐ In the same office
- ☐ In different offices

How important is it that your clinic is ideally located as you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 12: Temporal Proximity

An initial mental health visit typically occurs _____ following the referral (regardless of where the mental health provider is located).

Current

*Mark the item that best describes the **current** interval between a patient's referral from your clinic and an initial mental health visit.*

- ☐ Within one day
- ☐ Within one week
- ☐ Within two weeks
- ☐ Within one month
- ☐ Longer than one month

Ideal

*Mark the items that best describe the **ideal** interval between a patient's referral from your clinic and an initial mental health visit.*

- ☐ Within one day
- ☐ Longer than one day

How important is it that your clinic maintains the ideal referral interval that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 13: Mental Health Services and Expertise

Patients are referred to off-site specialty mental health services when they present with _____ mental health concerns.

Current

*Mark the items that best represent your clinic's **current** off-site specialty mental health referral practices.*

- ☐ Low medical complexity/ Low mental health complexity problems
- ☐ High medical complexity/ Low mental health complexity problems
- ☐ Low medical complexity/ High mental health complexity problems
- ☐ High medical complexity/ High mental health complexity problems
- ☐ All concerns can be treated in your clinic

Ideal

*Mark the items that best represent your clinic's **ideal** off-site specialty mental health referral practices.*

- ☐ Low medical complexity/ Low mental health complexity problems
- ☐ High medical complexity/ Low mental health complexity problems
- ☐ Low medical complexity/ High mental health complexity problems
- ☐ High medical complexity/ High mental health complexity problems
- ☐ All concerns can be treated in your clinic

How important is it that your clinic attain the ideal level of on-site mental health services that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 14: Mental Health Services and Expertise

Which of the following statements best describe the *pharmacological interventions* (PI) for mental health problems available within your clinic?

Current

*Mark the items that best represent your clinic's **current** level of on-site mental health services and expertise.*

- ☐ PI are not provided
- ☐ PI are rarely provided by primary care providers
- ☐ PI may be provided by primary care providers
- ☐ PI are usually provided by primary care providers
- ☐ PI are usually provided by licensed mental health providers

Ideal

*Mark the items that best represent your clinic's **ideal** level of on-site mental health services and expertise.*

- ☐ PI are not provided
- ☐ PI are rarely provided by primary care providers
- ☐ PI may be provided by primary care providers
- ☐ PI are usually provided by primary care providers
- ☐ PI are usually by licensed mental health providers

How important is it that your clinic attain the ideal level of on-site mental health services that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 15: Mental Health Services and Expertise

Which of the following statements best describe the *mental health counseling interventions* (MHCI) for mental health concerns (e.g., anxiety, depression, OCD, ADHD etc.) available within your clinic?

Current

*Mark the items that best represent your clinic's **current** level of on-site mental health services and expertise.*

- ☐ MCHI are not provided
- ☐ MCHI are rarely provided by primary care providers
- ☐ MCHI may be provided by primary care providers
- ☐ MCHI are usually provided by primary care providers
- ☐ MCHI are usually provided by qualified mental health providers

Ideal

*Mark the items that best represent your clinic's **ideal** level of on-site mental health services and expertise.*

- ☐ MCHI are not provided
- ☐ MCHI are rarely provided by primary care providers
- ☐ MCHI may be provided by primary care providers
- ☐ MCHI are usually provided by primary care providers
- ☐ MCHI are usually provided by qualified mental health providers

How important is it that your clinic attain the ideal level of on-site mental health services that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 16: Mental Health Services and Expertise

Which of the following statements best describe the *behavioral health counseling interventions* (BHCI) for mental health concerns (e.g., sleep problems, smoking cessation, weight management, diabetes management etc.) available within your clinic?

Current

*Mark the items that best represent your clinic's **current** level of on-site mental health services and expertise.*

- ☐ BHCI are not provided
- ☐ BHCI are rarely provided by primary care providers
- ☐ BHCI may be provided by primary care providers
- ☐ BHCI are usually provided by primary care providers
- ☐ BHCI are usually provided by qualified mental health providers

Ideal

*Mark the items that best represent your clinic's **ideal** level of on-site mental health services and expertise.*

- ☐ BHCI are not provided
- ☐ BHCI are rarely provided by primary care providers
- ☐ BHCI may be provided by primary care providers
- ☐ BHCI are usually provided by primary care providers
- ☐ BHCI are usually provided by qualified mental health providers

How important is it that your clinic attain the ideal level of on-site mental health services that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Item 17: Mental Health Services and Expertise

Which of the following best describes the current level of mental health expertise among providers (including mental health providers) working in your clinic?

Current

*Mark the items that best represent your clinic's **current** level of on-site mental health services and expertise.*

- ☐ No expertise
- ☐ Limited expertise
- ☐ Basic expertise
- ☐ Moderate expertise
- ☐ Extensive expertise

Ideal

*Mark the items that best represent your clinic's **ideal** level of on-site mental health services and expertise.*

- ☐ No expertise
- ☐ Limited expertise
- ☐ Basic expertise
- ☐ Moderate expertise
- ☐ Extensive expertise

How important is it that your clinic attain the ideal level of on-site mental health services that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important

☐ Important
☐ Very Important

Item 18: Mental Health Services and Expertise

For what percentage of patients (all patients seen in your clinic) do primary care providers consult with a mental health provider?

Current

*Mark the items that best represent your clinic's **current** level of consultation.*

☐ 0% of patients
☐ 1-25% of patients
☐ 25-50% of patients
☐ 50-75% of patients
☐ 75-100% of patients

Ideal

*Mark the items that best represent your clinic's **ideal** level of consultation.*

☐ No consultation
☐ Limited consultation
☐ Basic consultation
☐ Moderate consultation
☐ Strong consultation

How important is it that your clinic attain the ideal level of on-site mental health services that you indicated above?

☐ Not Important
☐ Of Little Importance
☐ Somewhat Important
☐ Important
☐ Very Important

Item 19: Signage/Stigma

Medical and mental health staff _____ refer to mental health services as a separate program.

Current

*Mark the item that best represents how true the above statement **currently** is in your clinic.*

☐ Never
☐ Rarely
☐ Sometimes
☐ Most of the time
☐ Always

Ideal

*Mark the item that best represents how true the above statement would **ideally** be in your clinic.*

☐ Never
☐ Rarely
☐ Sometimes
☐ Most of the time
☐ Always

How important is it that your clinic attain the ideal relationship with mental health services that you indicated above?

☐ Not Important
☐ Of Little Importance
☐ Somewhat Important
☐ Important
☐ Very Important

Item 20: Signage/Stigma

Wherever located, the mental health clinic/provider to which you refer patients is known by name and signage that:

Current

*Mark the item that best represents the **current** relationship between your primary care clinic and the mental health services that you commonly use.*

- ☐ Directly implies that mental health and/or substance abuse treatment will be provided (e.g. the "Mental Health Office", "Psychiatry Service or Dept.", the "Psych team", the "Substance Abuse Counselor" "the Mental Health Outpatient Clinic")
- ☐ Is indirectly related to mental health and/or substance abuse treatment (e.g., "Behavioral services," "Health Counseling," "EAP Program")
- ☐ Is minimally related to mental health and or substance abuse treatment (e.g., "Integrated Care Office," "Collaborative Care Office").
- ☐ Is minimally distinct from your clinic's own name and signage (e.g., "Pleasant Primary Care Collaborative Care Unit")
- ☐ Is indistinguishable from your clinic's own name and signage (e.g., "Pleasant Primary Care")

Ideal

*Mark the items that best represent the **ideal** relationship between your primary care clinic and the mental health services that you commonly use.*

- ☐ Directly implies that mental health and/or substance abuse treatment will be provided (e.g. the "Mental Health Office", "Psychiatry Service or Dept.", the "Psych team", the "Substance Abuse Counselor" "the Mental Health Outpatient Clinic")
- ☐ Is indirectly related to mental health and/or substance abuse treatment (e.g., "Behavioral services," "Health Counseling," "EAP Program")
- ☐ Is minimally related to mental health and or substance abuse treatment (e.g., "Integrated Care Office," "Collaborative Care Office").
- ☐ Is minimally distinct from your clinic's own name and signage (e.g., "Pleasant Primary Care Collaborative Care Unit")
- ☐ Is indistinguishable from your clinic's own name and signage (e.g., "Pleasant Primary Care")

How important is it that your clinic attain the ideal relationship with mental health services that you indicated above?

- ☐ Not Important
- ☐ Of Little Importance
- ☐ Somewhat Important
- ☐ Important
- ☐ Very Important

Organizational Barriers

Item 21:

Current Collaboration

Mark the item that best represents the degree to which problems with organizational systems (e.g., problems with charting, problems with scheduling, and problems with patient flow), changes in staff responsibilities, maintaining sufficient space, and maintaining leadership and staff buy-in has been a barrier for your clinic in setting up its **current level of collaboration** with mental health providers.

- ☐ Very Low
- ☐ Low
- ☐ Moderate
- ☐ High
- ☐ Very High

Please specify organizational and systemic barriers encountered in setting up your clinic's current level of collaboration with mental health providers.

_____
_____
_____

More Intensive Collaboration

Mark the item that best represents the degree to which problems with organizational systems (e.g., problems with charting, problems with scheduling, and problems with patient flow), changes in staff responsibilities, maintaining sufficient space, and maintaining leadership and staff buy-in would be a barrier for your clinic were you to implement **greater levels of collaboration** with mental health providers.

- ☐ Very Low
- ☐ Low
- ☐ Moderate
- ☐ High
- ☐ Very High

Please specify organizational and systemic barriers that would be a problem were your clinic to implement more intensive levels of collaboration with mental health providers.

_____
_____
_____

Training/Background Differences as Barriers

Item 22:

Current Collaboration

Mark the item that best represents the degree to which differences in training, clinical processes, problem/disease conceptualization, professional ethics, and professional languages has been a barrier for your clinic in setting up **its current level of collaboration** with mental health providers.

- ☐ Very Little
- ☐ Low
- ☐ Moderate
- ☐ High
- ☐ Very Much

Please specify clinical/training barriers encountered in setting up your clinic's current level of collaboration with mental health providers.

_____
_____
_____

More Intensive Collaboration

Mark the item that best represents the degree to which differences in training, clinical processes, problem/disease conceptualization, professional ethics, and professional languages would be a barrier for your clinic you to implement **greater levels of collaboration** with mental health providers.

- ☐ Very Little
- ☐ Low
- ☐ Moderate
- ☐ High
- ☐ Very Much

Please specify clinical/training barriers that would be a problem were your clinic to implement more intensive levels of collaboration with mental health providers.

_____
_____
_____

Fiscal Barrier

Item 23:

Current Collaboration

Mark the item that best represents degree to which problems acquiring adequate reimbursement has been a barrier for your clinic in setting up its **current level of collaboration** with mental health providers.

☐ Very Low
☐ Low
☐ Moderate
☐ High
☐ Very High

Please specify reimbursement barriers encountered in setting up your clinic's current level of collaboration with mental health providers.

_____
_____
_____

More Intensive Collaboration

Mark the item that best represents the degree to which problems acquiring adequate reimbursement would be a barrier for your clinic were you to implement a **greater level of collaboration** with mental health providers.

☐ Very Low
☐ Low
☐ Moderate
☐ High
☐ Very High

Please specify expected reimbursement barriers that would be a problem were your clinic to implement more intensive levels of collaboration with mental health providers.

_____
_____
_____

APPENDIX D

Content Validation Questions

1. How relevant do you feel the above item is to the intended subject of this study?

   1 not relevant 2 somewhat relevant 3 fairly relevant 4 very relevant

   If you feel that the item is in need of revision to enhance relevance, please tell us specifically how you suggest we should revise it:

   _____
   _____
   _____

2. How clear do you feel that the above item is?

   1 not clear 2 somewhat clear 3 fairly clear 4 very clear

   If you feel the item is in need of revision to enhance clarity, please tell us specifically how you suggest we should revise it:

   _____
   _____
   _____

APPENDIX E

Email Template Used Recruiting Experts for Content Validation

I am a graduate student in the Department of Clinical Psychology at East Tennessee State University. I am currently working on my dissertation which generally examines collaborative and integrated models of care across East Tennessee. More specifically, what I am hoping to do with my study is: 1) examine the uptake of collaborative models of care (i.e., collaboration between primary care and mental health) across the Appalachian region of Tennessee; 2) examine relationships between primary care clinic type and collaboration models used; and 3) examine how barriers to increasing levels of collaboration differ between clinic types. The results of this study will hopefully inform healthcare policy and aid implementation efforts for clinics and organizations interested in increased collaboration.

For this study I developed (and adapted) a 10 item survey to examine primary care clinic characteristics (e.g., private practice, community health center, rural clinic etc.), type of collaboration between primary care and mental health, and barriers to increased collaboration. Before I distribute the survey to hundreds of primary care providers across the Appalachian region of Tennessee I was hoping to have content and clinical experts in the field read over and comment on the clarity and relevance of its items. As such, I am contacting you to ask if you would be willing to set aside about 15 – 20 minutes of your time to assist me with this project.

If you are interested in participating in this project you may click on, or paste the following link into your internet browser. Your name will not be directly associated with your comments, however, if you would be willing for me to privately contact you regarding your responses, you may enter the following participant code when prompted [#].

https://....

Thank you for your time and your interest in participating in this important project!

Sincerely,

Jeffrey H. Ellison, M.A.
Doctoral Candidate
Department of Clinical Psychology
East Tennessee State University
Johnson City, TN

APPENDIX F

Initial Cover Letter Sent with Survey

Jeffrey H. Ellison, M.A.
Department of Clinical Psychology
East Tennessee State University
420 Rogers Stout Hall
P.O. Box 70649
Johnson City, TN 37614

Dear Primary Care Provider,

My name is Jeffrey Ellison and I am a researcher at East Tennessee State University studying the interface between primary care and mental health care in East Tennessee. I am looking for dedicated and respected primary care providers from around the region to complete a brief questionnaire regarding how their clinics use/collaborate with mental health services. Your feedback is needed to help us identify, develop, and adapt policy and organizational procedures to support efficient, effective, and targeted health and mental health services in this volatile healthcare environment.

I understand that your time is very valuable, so I have made every attempt to keep this study brief and easily accessible.

You may EITHER:

1) **Complete a paper copy of the survey (see attached) and return it to study staff via mail in the postage-paid envelope included in this package**

   OR

2) **Access and submit an online version of the survey at: https://www.surveymonkey.com/s/primary_care_collaboration**

On the following pages please find consent documentation, a hard copy of the survey, a self-addressed and stamped postcard (to register for a drawing for a $100 Amazon gift card), and a self-addressed and stamped envelope (to return the completed survey in). Thank you for your time and feedback. If you have any questions, comments, or concerns about this research please contact me at ellisonj@goldmail.etsu.edu.

Sincerely,

Jeffrey H. Ellison, M.A.
Doctoral Candidate
Department of Clinical Psychology
East Tennessee State University
Johnson City, TN

APPENDIX G

Follow-up Letter Sent with Survey

Jeffrey H. Ellison, M.A.
Department of Clinical Psychology
East Tennessee State University
420 Rogers Stout Hall
P.O. Box 70649
Johnson City, TN 37614

Dear Primary Care Provider,

My name is Jeffrey Ellison and I am a researcher at East Tennessee State University studying the interface between primary care and mental health care in East Tennessee. Recently I sent you a brief questionnaire regarding how your clinic uses/collaborates with mental health services. **If you have already completed and returned this questionnaire, I want to give my sincere thanks and ask that you disregard this letter.** If you have not yet completed it, your feedback would be highly valued. Your responses could help us identify, develop, and adapt policy and organizational procedures to support efficient, effective, and targeted health and mental health services in this volatile healthcare environment.

I understand that your time is very valuable, so I have made every attempt to keep this study brief and easily accessible.

You may EITHER:

1) **Complete a paper copy of the survey (see attached) and return it to study staff via mail in the postage-paid envelope included in this package**

   OR

2) **Access and submit an online version of the survey at: https://www.surveymonkey.com/s/primary_care_collaboration**

On the following pages please find consent documentation, a hard copy of the survey, and a self addressed and stamped envelope (to return the completed survey in). Thank you for your time and feedback. If you have any questions, comments, or concerns about this research please contact me at ellisonj@goldmail.etsu.edu.

Sincerely,

Jeffrey H. Ellison, M.A.
Doctoral Candidate
Department of Clinical Psychology
East Tennessee State University
Johnson City, TN

VITA

JEFFREY H. ELLISON

Education:

Doctor of Philosophy in Psychology, December 2014
East Tennessee State University, Johnson City, TN

Master of Arts in Psychology, August 2011
East Tennessee State University, Johnson City, TN

Bachelor of Science in Psychology, August 2003
Appalachian State University, Boone, NC

Professional Experience:

Behavioral Health Integration Project Director
August 2014 – Present
Gaston Family Health Services, Gastonia, NC

Clinical Psychology Intern
August, 2013 – August, 2014
Stone Mountain Health Services, Pennington Gap, VA

Tele-Behavioral Health Provider/ Project Coordinator (Practicum)
August, 2012 – August, 2013
East Tennessee State University, Johnson City, TN

Clinical Psychology Associate (Practicum)
August, 2011 – August, 2012
Cherokee Health Systems, Knoxville, TN

Behavioral Health Consultant/ Pediatric Primary Care Practicum
August, 2010 – August, 2011
Mountain View Pediatrics, Marion VA

Behavioral Health Consultant/ Pediatric Primary Care Practicum
August, 2010 - August, 2011
ETSU Pediatrics, Johnson City, TN

Graduate Research Assistant, August 2008- August 2010
Dept. of Clinical Psychology
East Tennessee State University, Johnson City, TN

Certifications and Licenses:

Psychological Associate Licensure
North Carolina Psychology Board

Teaching Licensure, Special Education, Adapted Curriculum
North Carolina Department of Education

Presentations:

Werth, J., Ellison, J., Stroup, J., Lyall, S., & Calderon, J. (March, 2014). *Training in Rural Integrated Primary Care: Opportunities and Challenges from the Trainee Perspective*. Presented at the 2014 Counseling Psychology Conference, Atlanta, GA.

Polaha, J., & Ellison, J. (March, 2013). *Telehealth and "Reach" in Rural Appalachia.* Presented at the 2013 Collaborative Conference on Rural Mental Health, Boone, NC.

Polaha, J., Correll, J., & Ellison, J. (October, 2010). *Telehealth Applications*. Presented at the Annual Conference of the Collaborative Family Healthcare Association. Louisville, KY.

Polaha, J., Williams, S. L., & Ellison, J. (June, 2010). *Perceived stigma and mental health service preferences for parents of children with significant psychosocial concerns*. Paper Presented at the Annual Conference for the National Association for Rural Mental Health. Denver, CO.

Cirone, B., Polaha, J., & Ellison, J., (June, 2010). *Mental health seeking of rural young adults: A look at stigma and help seeking barriers*. Paper Presented at the Annual Conference for the National Association for Rural Mental Health. Denver, CO.

Ellison, J., Cirone, B., Williams, S., & Polaha, J. (September 2009). *Less stigma? Rural people's attitudes towards seeking mental health treatment in primary care*. Presented at Primary Care and Prevention Research Day ETSU College of Medicine. Johnson City, TN.

Grants:

Polaha, J. & Ellison, J. *Parents' Perceived Stigma Regarding Mental Health Services for Children: a Rural-Non-Rural Comparison Pilot Study.* Hayward Research Grant ETSU Psychology Dept., October, 2008 ($1,250)