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FOLLOW-UP EVALUATION OF TREATMENT FOR ANXIETY AND DEPRESSION
PROVIDED IN A UNIVERSITY-BASED PRIMARY CARE CLINIC

A thesis submitted in partial fulfillment of the requirements for the degree of Master of
Science at Virginia Commonwealth University

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Abstract

FOLLOW-UP EVALUATION OF TREATMENT FOR ANXIETY AND DEPRESSION PROVIDED IN A UNIVERSITY-BASED PRIMARY CARE CLINIC

By Renée Grinnell

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University

Virginia Commonwealth University, 2014

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Although integrated primary care psychology services are becoming increasingly common, the literature lacks adequate research support for the longitudinal durability of treatment effects following the conclusion of brief primary care interventions. This study served as a follow-up program evaluation of psychological services for depression and anxiety provided at the Medical College of Virginia's Ambulatory Care Center in Richmond, Virginia. Data were collected on 47 adult primary care patients who received treatment for depression and/or anxiety between six and 18 months prior to the follow-up telephone call. Data were collected on the trajectory of depression scores throughout and following treatment, treatment received by patients in the interim, and reasons provided by patients for discontinuing treatment. Analyses of these data indicated that primary care psychology services were effective in reducing patient anxiety and depression as measured by the GAD-7 and PHQ-9 respectively, even when controlling for additional treatment in the interim, and that patients as a group continued to improve over time

following the conclusion of treatment. These preliminary results should be interpreted with caution, however, due to the study's small sample size and lack of a control group. Study limitations, strengths, and future directions are addressed.

Follow-up evaluation of treatment for anxiety and depression provided in a university-based primary care clinic

Psychologists are increasingly being acknowledged as important care providers in a variety of areas beyond the typical private practice setting, particularly in medical environments. At the front lines of this change is the field of primary care medicine, where a biopsychosocial approach allowing for the inclusion of psychologists is becoming increasingly common (Bluestein & Cubic, 2009). Although about three-quarters of primary care patients report psychological as well as physical concerns, physicians are not always comfortable with the extent of their training in addressing mental health concerns (Grenier, Gaboury, Ritchie, & Hogg, 2008; Levant, 2005). Some physicians have reported that they lack confidence in treating their patients' psychological symptoms because they did not receive mental health training (Grenier et al., 2008). Thus, integrated approaches to primary care, where psychologists are included in the medical setting, can allow for improved patient services addressing a wide variety of needs.

The past ten years, in particular, have seen psychologists filling increasingly important and varied roles in medical settings. The Group Health Cooperative model of integration began appearing at conferences in the 1990s, leading to increased acceptance of mental health practitioners in primary care. While psychologists' roles are better established in medical environments, research to substantiate integrated care is still inadequate. A handful of studies have evaluated utility, problems, feasibility, and benefits within the integrated care approach, but none offer convincing evidence of efficacy as yet (Edwards, Garcia, & Smith, 2007; Funk & Ivbijaro, 2008). Only two other studies thus far have examined the longitudinal clinical functioning of primary care patients after receiving a brief course of behavioral health treatment

(Davis et al., 2008; Ray-Sannerud et al., 2012). In the absence of longitudinal evaluative studies, it will remain difficult to demonstrate the effectiveness of psychologists in the primary care setting.

The following sections will describe the integration, function, and services offered by psychologists in primary care. Next, barriers to psychologists' integration in the medical environment will be presented, as well as potential solutions. A review of relevant extant literature will follow, concentrating on depression and anxiety in an outpatient primary care setting as well as common treatment interventions. Follow-up program evaluation studies of primary care psychology services will subsequently be reviewed.

Psychologists in Primary Care: Models of Integration

Psychological treatment in primary care settings follows a population-based care model, which differs significantly from the traditional therapy model in session length and frequency. Instead of the standard 50-minute counseling session, primary care psychology settings typically last between 15 and 30 minutes, more consistent with the medical model of care (Rowan & Runyan, 2005). Due to time limitations, psychologists in medical settings must work quickly to develop rapport with the patient, establish potential diagnoses, and develop a treatment plan. Therapy is also more infrequent in primary care psychology, typically once per month instead of the traditional weekly standard. Because of this, clinicians often provide patients with written information packets to supplement the brief in-person intervention and allow patients to work on addressing their concerns independently (Rowan & Runyan, 2005).

Mental health services can be coordinated, co-located, or integrated into primary care centers (Blount, 2003). Coordinated care involves exchange of patient information between physicians and psychologists in different settings. This care model can make it difficult to

maintain communication without a personal commitment from staff on both sides (Blount, 2003). Co-located care houses psychologists within the medical center, allowing mental and medical health providers to discuss patients in passing and refer patients out more easily. One study of 100 patients in a family medicine residency found that physician referrals with a psychologist present in the room led to 74% of patients keeping their referral appointments, versus only 44% of patients referred by the physician only (Coleman, Patrick, Eagle & Hermalin, 1979, as cited in Blount, 2003). Co-located services, therefore, often yield higher follow-up rates than coordinated care. Unlike coordinated or co-located care, the integrated care model involves a team-based approach between physicians and psychologists, who share patient information, files, and physical space (Blount, 2003). The team develops patient plans that involve both behavioral and medical treatments as necessary.

Multiple factors (e.g., sharing of physical environment and information, a collaborative culture) contribute to the level of integration in medical settings (Collins, Levis, Mung, & Wade, 2006). Shared environments improve communication between medical and psychological health providers as well as increasing the likelihood of patient referrals to psychology (Blount, 2003). Easily accessible electronic patient files with shared access by both physicians and psychologists greatly influence integration in primary care settings (Knowles, 2009). Finally, when the culture of a medical setting is such that psychologists' roles are established and their services used regularly, benefit to patients is maximized. Workshops for physicians with information about available mental health services are often helpful, as are interdisciplinary treatment teams involving not only the physician and psychologist but other necessary staff such as social workers, pharmacists, and dietitians (Knowles, 2009).

Function of Psychologists in Primary Care

Because physicians are not fully trained to treat psychological problems in primary care, integrated models address patient needs best (Butler et al., 2008; Kessler, Stafford, & Messier, 2009). The relationship between patients' physical and mental health is strongly bidirectional, demonstrated by the high prevalence of mental health symptoms and disorders in medical settings (Levant, 2005). Physical problems in patients are often related with additional stressors contributing to symptoms of anxiety and depression (Bluestein & Cubic, 2009). Additionally, the more medical treatment a patient is prescribed, the higher their symptoms of depression (Gunn & Blount, 2009). Thus, the presence of support staff that are knowledgeable about symptoms and treatment for depression and other mental health problems is indispensable in a medical setting.

The primary care setting is the first line of defense in detecting and treating mental health disorders in patients. The American Academy of Family Physicians (AAFP) has noted that 47% of people with Generalized Anxiety Disorder and 42% of people with depression were first identified and diagnosed by primary care physicians (AAFP, 2004, as cited in Westheimer, Steinley-Bumgarner, & Brownson, 2008). Having psychologists available in these settings is therefore worthwhile. Primary care is also an ideal setting for introducing mental health services to those who would not otherwise seek them due to concerns about stigmatization; one study found that patients whose physicians referred them to a psychologist during a typical medical appointment were less resistant toward receiving mental health services (Ayalon, Arean, Linkins, Lynch, & Estes, 2007).

An integrated care model is especially helpful for allowing underserved populations, of whom many do not seek out mental health services on their own, access to care. In one study, integrated care resulted in greater access to care, fewer missed appointments, and improved patient participation in mental health services compared to collocated clinics (Ayalon et al.,

2007). Proximity of care and the ability to establish a trusting patient-physician relationship were both discussed by the authors as potential reasons behind patients' improved acceptance of mental health care in a primary care setting (Ayalon et al., 2007). Underserved patient populations may also avoid mental health services due to barriers such as problems with transportation. As "one-stop shopping" for patients, the integrated model helps to ameliorate this problem, of particular importance for lower socioeconomic status patients who may have trouble finding transportation to appointments (Rowan & Runyan, 2005).

Another important role psychologists can fulfill in a primary care setting is to help ascertain the necessity of psychiatric medications for patients, as well as providing behavioral treatment alternatives for medication. While 60-70% of all psychotropic medications are prescribed by primary care physicians, many are recommended without proper assessment or official diagnoses (Lewis, Marcus, Olfson, Druss, & Pincus, 2004, as cited in Gunn & Bount, 2009). Patients themselves often indicate a preference for treating their mental health concerns with counseling over medication. One study explored perception of and preference for depression treatment in patients from 46 primary care clinics across the United States (Dwight-Johnson et al., 2000). 83% of patients surveyed wanted treatment for their depression, with 67% of those desirous of treatment indicating a preference for counseling, particularly African Americans. Given these results, medication alone is not consistent with most patients' preferences (Schaik et al., 2004). Additionally, patients given psychological services show greater adherence to medical treatment recommendations and are more proactive, leading to improved general health outcomes and a decreased likelihood of future visits (Robinson & Strosahl, 2009).

Psychologists in integrated care settings often administer preventative care (e.g., lifestyle

modifications such as stopping smoking or losing weight), which can reduce future medical costs (Jason, Corradi, & Torres-Harding, 2005). This is of particular importance given the fact that medical conditions with the highest rates of mortality have associated behaviorally modifiable risk factors, such as lack of exercise, poor diet, and tobacco use (Mokdad, Marks, Stroup, & Gerberding, 2004). Nearly all primary care patients (97%) possess at least one such risk factor; many have two or more (87%) (Flocke, Crabtree, & Stange, 2007). Treatment of prodromal symptoms is easier and more affordable than managing associated diseases or other chronic conditions. Psychologists can inform patients about the connection between mental and physical health, as well as facilitate change by offering patients support and appropriate behavioral tools.

Psychologist Services in Primary Care

Primary care psychologists see a wide range of presenting problems, often comorbid. Thus, a broad base of knowledge is necessary, along with the ability to address psychological, behavioral, and interpersonal components of any presenting concern (McDaniel & Fogarty, 2009). There is no standard treatment protocol or patient profile in an integrated care setting because primary care psychologists treat many different symptoms in patients. Some patients with diagnosable psychological disorders can be assisted in the primary care setting using brief evidence-based treatments, referring to off-site practitioners for more consistent and frequent care where appropriate (Knowles, 2009). A common consideration for psychologists in this setting is the ways in which patients' psychological states may aggravate health conditions and affect management of medical problems. Common interventions for such patients include relaxation techniques such as deep breathing and progressive muscle relaxation, which can alleviate anxiety, sleep problems, and pain, among other wellness areas. Behavior modification interventions help patients to initiate and sustain positive lifestyle changes such as managing

diabetes, reducing or stopping smoking, and adhering to medication treatment by altering behavioral consequences. Empirically supported interventions such as cognitive-behavior therapy, motivational interviewing, and problem-solving are all used by psychologists to assist with health-related behavior change in the primary care setting. Psychologists can also serve as important liaisons between doctors and patients. Physicians can be notified of important information to improve overall care and offered education in patient communication and management, while patients can be taught how to speak effectively and assertively with physicians.

Problems in Integration of Care

Although there are many benefits to including psychologists in medical settings as addressed in the previous section, barriers such as different psychological and medical professional jargons, unclear roles, lack of physical space to accommodate psychologists, and financial issues have slowed the assimilation of psychologists into health care settings (Kessler et al., 2009). The first barrier has a relatively easy fix; psychologists can improve their communication with physicians by avoiding psychological jargon and adopting more medical terminology (Knowles, 2009).

Defining one's role in a behavioral medicine setting requires that the psychologist assimilate into the medical model while establishing a position as a unique contributor to the health of patients (Gunn & Blount, 2009). Effective communication to physicians of available mental health services is an essential part of the collaborative process to improve patient care. One study surveyed ten primary care providers in an integrated care university health center about mental health services offered there (Westheimer, Steinley-Bumgarner, & Brownson, 2008). While the physicians' responses indicated they valued and believed in the efficacy of

psychological services, they did not make many referrals to mental health and failed to understand the scope of problems psychologists could help to treat. In a similar study, physicians complained about not receiving any follow-up information from psychologists about patients they had referred (Grenier et al., 2008). In a 2007 study, Flocke, Crabtree, and Sage asked 21 primary care doctors for ways to improve integrated mental health services. Respondents indicated that they tended to address behavioral issues in their patients themselves instead of referring to psychologists, but only briefly because physicians are not reimbursed for such services (Flocke et al., 2007). Readily accessible psychologists in an integrated care setting would be more likely to garner such referrals (Flocke et al., 2007). The studies reviewed indicate that more effective communication between psychologists and physicians, as well as continued encouragement of referrals from physicians, improves integration of care.

Other concerns that can be more difficult to circumvent include lack of physical space and financial issues. Regarding space, difficulties in accommodating more professionals in established medical practices can prevent expansion to include psychologists on site (Collins et al., 2006). Financial barriers, especially complications related to establishing billing systems, also make medical professionals hesitant to adopt an integrated care model at times (Collins et al., 2006). Another factor affecting collaboration between psychologists and physicians is perceived cost of referral services; one study found that physicians were aware of available psychological services in the community but were hesitant to refer their patients because of the cost (Grenier et al., 2008).

Solutions to Integration of Care

By establishing positive relationships with primary care medical providers and seeking specialty training in medical environments, psychologists can overcome many of the barriers

discussed in the previous section and implement their important services more effectively in integrated settings. Familiarity with hospital culture and flexibility are important characteristics for learning about and adapting to the medical environment. Furthermore, psychologists must work to build relationships with the physicians they serve, informing care providers about available services and remaining open to unscheduled consultations with physicians (Gunn & Blount, 2009). Increased physician exposure over time to integrated care programs will also result in a higher likelihood of physicians identifying situations where referrals to psychology would be useful (Robinson & Strosahl, 2009).

Specialty training is also key for improving psychologist functioning in medical settings; traditionally trained mental health providers often experience more difficulty without additional instruction (Bluestein & Cubic, 2009). Some graduate training programs are offering behavioral medicine and health psychology training (see Council for Clinical Health Psychology Training Programs website, <http://www.cchptp.org/>). Newly established government grant programs supporting the education of psychology graduate students in primary care settings have also helped expose more future psychologists to work in medical environments (Bluestein & Cubic, 2009). When the Physician Belief Scale (Ashworth, Williamson, & Montanco, 1984) was used to evaluate family medicine resident and faculty feelings about the presence of psychologists in one integrated primary care environment, responses were unanimously positive (Bluestein & Cubic, 2009).

Depression in Primary Care Settings

Depression is highly prevalent in primary care settings; one recent study found that 27.3% of a sample of 1,752 patients screened with the Prime-MD met criteria for depression (Tamburrino, Lynch, Nagel & Smith, 2009). Multiple intervention studies have examined the

efficacy of treating depression in primary care patients, including those who are elderly, and have reported significant improvement in depressive symptoms with interpersonal psychotherapy, antidepressant medication, or both (Bruce et al., 2004; Unutzer, 2002). Furthermore, the association between depression and chronic disease will play an increased role in an aging population (Craven & Bland, 2013). Many older adults are at higher risk for depression and suicide. Since older adults tend to visit their physicians more often, the primary care setting can serve as a first line of defense in identifying and treating depression.

Depressed mood negatively affects patient compliance as well as health outcomes, and is therefore an important psychological variable to evaluate in a primary care setting. In a meta-analysis of twelve studies investigating how patient adherence to medical recommendations is affected by depression and anxiety, depressed patients were on average three times more likely not to comply with their physician's instructions than non-depressed patients (DiMatteo, Lepper, & Croghan, 2000). Thus, depression places patients at risk for poorer overall health outcomes.

A recent program evaluation of primary care psychology services offered at the Virginia Commonwealth University (VCU) Medical Center's Ambulatory Care Clinic, where the current study took place, analyzed baseline patient PHQ-9 depression scores as well as their change over time (Sadock, Auerbach, Rybarczyk, & Aggarwal, 2014). The mean baseline PHQ-9 score among patients who completed the measure during their first or second visit (N = 164) was 13.90 (SD = 6.68), or moderate depression. From baseline to the final visit, 38.5% of patients whose visits focused on depression treatment experienced a reduction of 5 points, or one clinical range, in their PHQ-9 scores. 22.6% of depression patients' PHQ-9 scores dropped below the clinical cutoff of 5 by the middle of their treatment regimen, with another 7.6% dropping below clinical range by their final visit. Thus, more than one-third of patients treated for depression experienced

clinically significant symptom reduction between the initial and final visits ($p < .001$).

A recent meta-analysis of fifteen randomized controlled trials evaluated psychological treatment for depression in adult primary care patients versus control groups receiving care as usual, placebo, or waitlist placement (Cuijpers, Straten, Schaik, & Andersson, 2009). Results indicated that depression treatment can be effective in a primary care setting, particularly when the patient is referred specifically by his or her physician to mental health services. Treatment outcomes were not as positive when random depression screenings identified potential patients, compared with physician referrals (Cuijpers et al., 2009). Possible factors contributing to improved outcomes in directly referred patients include encouragement from the physician, or awareness by the physician of additional patient factors not readily identified by a questionnaire, such as past experiences with mental health treatment. The results of this meta-analysis underscore an important benefit of integrated care in addition to the effectiveness of depression treatment in a primary care setting.

Other studies have further explored the benefits of integrated care settings by comparing depression treatment administered in primary care settings versus separate mental health specialty clinics. One such study, Primary Care Research in Substance Abuse and Mental Health for the Elderly (PRIMS-E), examined rates of depression in two randomly assigned groups of older adults ($N = 1,531$, $M = 73.9$ years) at baseline and after six months of mental health treatment (Krahn, Bartels, Coakley, Oslin, Chen, & McIntyre, 2006). The first condition, integrated care, was operationalized as mental health and medical services co-located in one facility. The second group, enhanced specialty referral, received care outside of the medical facility. Results revealed that individuals with major depression experienced the greatest symptom reduction when referred out for enhanced specialty treatment, which is the typical

protocol for patients presenting with more severe psychopathology in a primary care setting (Knowles, 2009). The concentrated treatment approach of specialty treatment settings is more appropriate for patients with more severe symptoms, but access may be more difficult for patients with additional psychosocial difficulties (e.g., limited mobility, lack of transportation, low income). Although specialty referral settings were initially more effective in lowering depressive symptoms, both the enhanced referral and integrated care groups presented with similar rates of depression at three- and six-month follow-ups (Krahn et al., 2006). Other recent studies have also found that primary care settings can yield the same depression outcomes as referral specialty care settings at follow-up (Cuijpers et al., 2008). Integrated care programs offer additional benefits beyond effective depression treatment (e.g., convenience of co-located care, reduction of stigma surrounding mental health care, introducing mental health services to those unfamiliar with them).

Anxiety in Primary Care Settings

Like depression, untreated anxiety also causes significant impairment. However, anxiety often goes unnoticed in primary care settings because it is not as prevalent as depression. One recent study examined the prevalence, impairment, comorbidity, and detection of anxiety disorders in 965 patients from 15 primary care clinics in the United States (Kroenke et al., 2007). Participants completed a phone interview comprised of the Generalized Anxiety Disorder (GAD-7) questionnaire and structured questions administered by a mental health professional. 19.5% of the primary care patient participants met criteria for at least one anxiety disorder, 8.6 had posttraumatic stress disorder, 7.6% had generalized anxiety disorder, 6.8% had a panic disorder, and 6.2% had a social anxiety disorder. The more comorbid anxiety disorders for which patients met, the greater their self-reported impairment, despite the fact that 41% of those with disorders

were receiving no treatment (Kroenke, Spitzer, Williams, Monahan, & Lowe, 2007).

Lower health-related quality of life (HRQL) is significantly correlated with symptoms of anxiety and depression, as well as impairment, in those diagnosed with generalized anxiety disorder (Revicki, Brandenburg, Matza, Hornbrook, & Feeny, 2008). Increased anxiety is accompanied by increased impairment in areas such as physical functioning, psychological well-being, disease-specific quality of life, and disability in everyday life (Revicki et al., 2008). Patients with any anxiety disorder report worse physical and mental functioning compared with the general population (Beard, Weisberg, & Keller, 2010). Consistent with other comorbid diagnoses, depressed patients with high anxiety levels also demonstrate worse depression outcomes following treatment in a primary care setting (Bauer et al., 2012). Therefore, like depressive symptoms, anxiety symptoms are important to monitor in primary care settings due to their reciprocal effects on and with physical health.

Recent studies have demonstrated effective treatment of anxiety by psychologists in primary care settings (Kroenke, 2012). In a sample of 1004 primary care patients receiving a collaborative care intervention for anxiety, Campbell-Sills and colleagues (2013) found significant reductions in symptomology as measured by the BSI-A (Brief Symptom Inventory for Anxiety). Furthermore, medical comorbidity did not have a significant negative effect on patient anxiety at baseline or following 6, 12, or 18 months of treatment (Campbell-Sills et al., 2013). Another study evaluated the Coordinated Anxiety Learning and Management (CALM) model, which delivers evidence-based anxiety disorder treatment (10-12 sessions of cognitive-behavior therapy, anti-anxiety medication, or both) in 1,004 primary care patients (Joesch et al., 2013). CALM produced greater improvement than usual care in patient anxiety symptoms as measured by the Overall Anxiety Severity and Impairment Scale (OASIS), with approximately two-thirds

of participants below cutoff for clinically significant anxiety two months after initiation of treatment (Joesch et al., 2013). Similar to the CALM study, recent research found that a Collaborative Stepped Care (CSC) model of guided self-help, CBT, and antidepressants was superior to treatment as usual in a sample of 180 Dutch primary care patients with either Panic Disorder or Generalized Anxiety (Muntingh et al., 2014). The Beck Anxiety Inventory (BAI) was used to measure patient anxiety symptoms at baseline and after 3, 6, and 12 months. These results further underscore the importance of detecting anxiety symptoms in primary care settings, as they can be effectively treated in-house via a collaborative care model.

Follow-up Evaluation of Primary Care Psychology Interventions

Only two studies to date have investigated the longitudinal clinical functioning of primary care patients post-treatment. Davis et al. (2008) provided brief, time-limited integrative counseling to British primary care patients and measured symptoms of psychological distress immediately before and after counseling, as well as 30 months following the conclusion of treatment. Patients reported a reduction in their distress over the course of treatment and further improvement at follow-up, indicating maintenance of the benefits they derived from counseling. Furthermore, patients who received counseling had significantly fewer visits to their primary care physician in the 12 months following psychological treatment than in the 12 months prior to receiving counseling (Davis et al., 2008). One weakness of this study was the low participant response rate of approximately 40% at follow-up. Furthermore, Davis and colleagues describe a “small but significant” improvement in patient symptomology between the conclusion of counseling and follow-up, but do not discuss the clinical significance, if any, of this improvement.

The most recent study collected patient self-reports 18 months to three years after they

received brief behavioral health treatment in an integrated-care family medicine clinic (Ray-Sannerud et al., 2012). Patients completed the 20-item self-report Behavioral Health Measure (BHM), a measure of global health functioning, at all appointments with their behavioral health consultants (BHCs). One and a half to three years following their receipt of brief interventions from BHCs in primary care, 70 racially and ethnically diverse patients completed an additional BHM to determine longitudinal mental health functioning. Patients improved between their initial and final BHC appointments, with gains maintained for two years on average post-intervention. Results remained significant even when controlling for the receipt of additional psychological treatment in the interim. One significant limitation of this study was the small percentage of patients that completed follow-up measures (10.5%) as well the long time interval that lapsed since the last treatment. The latter raises questions about the impact of treatment relative to other life events.

Although the results of both the aforementioned longitudinal evaluations are promising, in the absence of additional research no definitive conclusions can be drawn regarding the long-term efficacy of brief mental health interventions in primary care.

Statement of the Problem

In the past two decades, psychologists have been more fully incorporated into many outpatient primary care settings, facilitating patient-physician communication and offering effective, brief, cost-effective interventions for a wide variety of patient psychosocial concerns. Depression and anxiety are particularly prevalent in the population at large, and in these settings as well. Many patients avoid seeking mental health treatment for reasons such as finances, logistical problems, and fear of stigmatization; the availability of psychological services in a primary care setting ameliorates many of these concerns. While barriers to full integration of

psychologists into medical settings still exist, many viable solutions are available. Many studies have demonstrated the efficacy of various primary care psychology interventions, but little follow-up research has been carried out with past recipients of these, with only two longitudinal program evaluations in the literature to date (Davis et al., 2008; Ray-Sannerud et al., 2012).

A previous study of integrated services provided by trainees at the Primary Care Psychology Clinic at the VCU Medical Center demonstrated modest but significant improvements in anxiety and depression. Sadock et al. (2014) found clinically significant improvement in depression and anxiety for approximately 40-50% of the primary care patients in their sample whose treatment focused on these areas. While treatment effects were modest and many patients did not receive clinically significant benefits, the authors reported “promising” effects given the brevity of treatment (M = 2.2 sessions). Furthermore, unlike traditional psychological treatment studies where final assessments are conducted at a defined end-point of treatment, integrated care patients are instructed that they only need to return for follow-up sessions if and when they need additional treatment (i.e., the same approach taken for all primary care visits). This means that depression and anxiety scores for patients who improved after the last session of treatment are not included in the data set. Follow-up assessment is more likely to capture these improvements that are made subsequent to the last session attended.

Additional evidence supporting the long-term treatment effect durability of brief primary care therapy interventions will further strengthen the case for involving psychologists in integrated primary care medical settings. For this study, follow-up phone calls were conducted with patients formerly receiving depression and/or anxiety treatment through the Primary Care Psychology Clinic at the VCU Medical Center.

The following specific hypotheses were evaluated:

1. Current patient depression and anxiety scores (as measured by the PHQ-9 and GAD-7, see Measures section) will remain the same or show improvement compared with scores at the final visit to Primary Care Psychology.
2. Patients who report that Primary Care Psychology services were moderately or very helpful will show significantly more improvement in depression and anxiety scores compared with those who felt the services were not at all or a little bit helpful.
3. Improvement in patient depression and anxiety scores will remain significant even when controlling for receipt of additional behavioral treatment in the interim.
4. Improvement in patient depression and anxiety scores will remain significant even when controlling for receipt of psychiatric medications in the interim.

Method

Participants

The study participants are primary care patients at the Ambulatory Care Clinic (ACC) at the Virginia Commonwealth University (VCU) Medical Center in Richmond, Virginia. This medical center primarily serves under- and uninsured populations from both urban and surrounding rural areas. Resident primary care physicians refer patients to the psychology clinic as needed. Psychological service providers are graduate students from Virginia Commonwealth University clinical and counseling doctoral psychology programs, supervised on-site by licensed clinical psychologists who specialize in behavioral medicine. For this study, underserved adult primary care patients who received at least one session of primary care psychology services for depression or anxiety and who were last seen six to 18 months prior were contacted.

Characteristics of the overall behavioral health patient population at the site of this study, are detailed in a recent program evaluation (Sadock, Auerbach, Rybarczyk, & Aggarwal, 2014).

Patient ages in the sample of 452 adults ranged from 19 to 88, with an approximate mean age of 52 years and 18.6% of the sample aged 65 or older. The majority of patients were African American (59.2%), female (63.7%), and unemployed (74.6%). 63% received Medicare or Medicaid, an additional 35% were uninsured, and the remaining 2% had private insurance. Behavioral health services provided to patients included treatment for depression, anxiety, chronic pain, treatment adherence, smoking cessation, weight loss, and insomnia. Interventions followed current evidence-based practices for brief behavioral health treatment (Sadock et al., 2014). During this study's 16-month data collection period, the mean number of patient visits was 2.15 (SD = 2.32). Time between visits was variable, with an average interval of 37.47 days between patients' first and second primary care psychology sessions (Sadock et al., 2014).

Procedure

As described by Sadock et al. (2014), physicians at the ACC identify patients judged to be good candidates for behavioral interventions and refer them to the primary care psychology clinic. All physicians are internal medicine residents whose work is being supervised by attending physicians. As standard practice, the purpose of the patient referral and the focus of the session is recorded in patients' electronic visit notes by the psychology graduate students. Student clinicians also administer brief questionnaires as time permits and record results in the electronic patient chart. Anxiety and depression are routinely measured for all patients using the Generalized Anxiety Disorder (GAD-7; Spitzer, Kroenke, & Williams, 2006) and the Patient Health Questionnaire-9 (PHQ-9; Spitzer, Kroenke, & Williams, 1999), in light of the high prevalence of these conditions (Primary Care Psychology Presenting Problems, 2009).

Following the initial assessment, student clinicians administer brief interventions focusing on the identified problem area. Interventions are not standardized because the

complexity of each patient's symptoms requires a more idiographic approach, consistent with standard psychological treatments applied by primary care psychologists (Blount, 2003; Sadock et al., 2014). However, interventions are consistent with empirically derived brief interventions as cited in the introductory literature review. If desired, patients then schedule follow-up appointments at variable intervals, depending on the referral problem, patient availability and transportation status, and other factors affecting scheduling.

For this study, a database of patients last seen for primary care psychology services between six and 18 months prior was created. The electronic medical charts of these patients were then reviewed to identify those who had been treated primarily for anxiety and/or depression, and who had not returned for psychology services within the past six months. At least one phone call attempt was made for patients meeting these criteria (N=106). No messages were left on answering machines; patients were only invited to be in the study if direct phone contact was made. 49 patients were successfully contacted by phone. Of this group, 47 agreed to participate and were administered a phone interview lasting approximately 10 to 15 minutes. Participants answered questions about current anxious and depressive symptoms, mental health treatment received since they were last seen at primary care psychology, and how helpful they thought our primary care psychology services were. Participants were also asked whether they wanted a note with assessment scores to be added to their electronic medical chart for their doctor's review. Those who scored in clinical ranges for anxiety or depression were encouraged to return to primary care psychology for treatment and provided with appropriate appointment and referral information (See Appendix A).

Measures

The Generalized Anxiety Disorder seven-item scale (GAD-7)

During the phone call the Generalized Anxiety Disorder seven-item scale was administered (GAD-7; Spitzer, Kroenke, & Williams 2006). The GAD-7 assesses anxiety symptom frequency in the past two weeks using a Likert scale with the following anchors: 0 = not at all, 1 = several days, 2 = more than half the days, and 3 = nearly every day (see Appendix A). The sum of the seven ratings results in a summary score between 0 and 21, where a score of 4 or less indicates no anxiety, 5 to 9 suggests mild anxiety, 10 to 14 indicates moderate anxiety, and 15 or greater suggests severe anxiety. Patients are also asked to complete a summary question inquiring how difficult their anxiety symptoms have made it for them to do work, take care of things at home, or get along with other people. The item response choices are: not difficult at all, somewhat difficult, very difficult, or extremely difficult.

2,739 patients from 15 different United States primary care clinics were used to norm the GAD-7 (Spitzer, Kroenke, & Williams, 2006). Their self-reported GAD-7 scores were compared to the diagnoses of mental health professionals, measures of functional status, disability days, and health care records; all results indicated good agreement. The scale also possesses good reliability and validity. High internal consistency exists between the seven items (Cronbach's alpha = .92), and test-retest reliability is also good, with an intraclass correlation of .83. The GAD-7 has also been shown to have good reliability regardless of administration method (self-report versus oral administration by a mental health professional), with an intraclass correlation of .83. This is particularly significant in the current study, as most patients completed GAD-7s via written self-report in the primary care setting, but all were administered it orally in follow-up phone calls.

Clinically significant GAD-7 cutoff scores were determined by comparing patient scores on the measure with mental health professionals' ratings from the Diagnostic and Statistical

Manual of Mental Disorders, 4th Edition (DSM-IV). Comparison results indicated that a GAD-7 summary score of 10 or greater yielded a sensitivity of 89% and specificity of 82% in predicting generalized anxiety disorder (Spitzer, Kroenke, & Williams, 2006). The GAD-7 was also adequate at detecting panic disorder (sensitivity 74%, specificity 81%), social anxiety disorder (sensitivity 72%, specificity 80%), and posttraumatic stress disorder (sensitivity 66%, specificity 81%) (Spitzer, Kroenke, & Williams, 2006). A factor analysis and additional analyses by the authors determined the distinct dimensionality of depression and anxiety as well as differences in their presentation and effects on impairment and disability.

The Patient Health Questionnaire-9 (PHQ-9)

During follow-up evaluation phone calls, subjects were also administered the Patient Health Questionnaire nine-item scale (PHQ-9), which has been used extensively as a brief screening tool for depressive symptomology in primary care settings (Klinkman, 2009; Tamburrino et al., 2009). The PHQ-9 inquires about symptoms of depression experienced over the past two weeks (see Appendix A). Like the GAD-7, the PHQ-9 uses a Likert scale with four anchors: 0 = not at all, 1 = several days, 2 = more than half the days, and 3 = nearly every day. The nine item ratings contribute to a summary score between 0 and 27, with the following cutoffs: a score of 4 or less indicates no depression symptoms, 5 to 9 indicates mild depression, 10 to 14 denotes moderate depression, 15 to 19 indicates moderately severe depression, and 20 or greater suggests severe depression.

A sample of 3,000 primary care patients was used to validate the PHQ-9 (Kroenke, Spitzer, & Williams, 2001). Internal consistency was very high, with a Cronbach's alpha of .89, as was test-retest reliability ($r = .89$). As with the GAD-7, DSM-IV structured clinical interviews were administered to patients, compared with their scores on the PHQ-9, and used to create

cutoff scores. Likelihood ratios (LRs) for a diagnosis of Major Depressive Disorder were calculated for each of the PHQ-9's five severity range scores; all five were positive. The positive LR for normative sample patients whose PHQ-9 scores fell in the no-depression range (0-4) was 0.04 and increased for each of the five ranges (0.5, 2.6, 8.4, and 36.8 for the mild, moderate, moderately severe, and severe categories, respectively) (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has also been shown to be reliable and valid across different populations in a primary care setting. In one such study, which included 2,513 minority individuals, exploratory factor analysis revealed one factor loading per racial or ethnic group with coefficients ranging from .79 to .89, indicating the PHQ-9's depression detection ability is equally effective in non-Caucasian primary care patients (Huang et al., 2006).

Results

Sample Characteristics

The database for this study contains data obtained from VCU Medical Center primary care patients referred to the psychology clinic for anxiety and/or depression whose final visit fell between six and 18 months prior to the follow-up call date. Calls were conducted between March and June of 2014, so attempts at phone contact were made for all patients last seen between September of 2012 (18 months prior to March 2014) and December of 2013 (six months prior to June 2014), $N = 106$. Participants were 47 adults, 40 females (85.1%) and seven males (14.9%). Participant ages ranged from 26-84 ($M = 53.91$, $SD = 12.53$), with 17.0% of the sample over age 65. 14 Caucasians (29.8%) and 33 African Americans (70.2%) participated in the study. The majority of participants were African American females ($N = 28$, 59.6%). 44 (93.6%) reported that they were still patients at VCU Medical Center. About half ($N = 24$, 51.1%) of participants reported that they did not receive compensation for disability, while roughly one-quarter were on

disability ($N = 12, 25.5\%$) and another quarter were in the process of applying ($N = 11, 23.4\%$).

The demographic characteristics of this sample of primary care patients receiving psychological services did not differ significantly from their eligible counterparts who were not surveyed due to our inability to contact them or their refusal to participate. Of the 59 additional eligible patients for whom assessment data were available, 47 were female (79.7%); gender distribution was not significantly different between those surveyed and not surveyed, $\chi^2(1, 106) = 0.53, p = 0.468$. Of the eligible patients who were not surveyed, 6 (10.2%) were age 65 or older; age distribution did not significantly differ between eligible patients who were and were not surveyed, $\chi^2(1, 106) = 1.74, p = 0.188$. 44 of the 59 (74.6%) eligible patients who could not be contacted for follow-up were African American, 14 (23.7%) were Caucasian, and one (1.7%) identified as “other”. As with gender and age distribution, no significant differences in race distribution were observed between the two groups, $\chi^2(1, 106) = 1.23, p = .541$.

Patients were seen for approximately four primary care psychology visits on average ($M = 4.20, SD = 4.55$), with a typical follow-up interval of about 10 months between their last psychology appointment and the study phone call ($M = 304.43$ days, $SD = 92.70$). Eligible patients who did not participate in the study averaged 4.54 visits ($SD = 3.83$), a nonsignificant difference between this group and study participants, $t(104) = 0.691, p = 0.491$. All patients were contacted because at referral they reported symptoms of depression ($N = 40, 85.1\%$ of those successfully contacted for follow-up) and/or anxiety ($N = 26, 55.3\%$). Additional presenting complaints included pain ($N = 9, 19.1\%$), weight management ($N = 3, 6.4\%$), grief ($N = 5, 10.6\%$), insomnia ($N = 5, 10.6\%$), and substance use ($N = 9, 6.4\%$). See Table 1 for a summary of patient characteristics within this sample.

Table 1.

Characteristics of the patient sample

Gender	40 female (85.1%)	7 male (14.9)	
Age	39 < age 65 (83.0%)	8 ≥ age 65 (17.0%)	
Race	14 Caucasian (29.8%)	33 African American (70.2%)	
Current ACC patient	44 yes (93.6%)	3 no (6.4%)	
Receiving disability	12 yes (25.5%)	24 no (51.1%)	11 applying (23.4%)
Reason for referral	40 depression (85.1%)	26 anxiety (55.3%)	

Changes in Patient Depression and Anxiety Scores

At the first visit to primary care psychology, the average patient's PHQ-9 depression score fell in the moderately severe clinical range ($M = 16.15$, $SD = 5.37$). No significant difference in initial visit PHQ-9 scores was found between the group of patients successfully reached for follow-up program evaluation and those who were not, $t(103) = 0.377$, $p = 0.707$.

The average PHQ-9 depression score for patients in the study sample fell in the moderate to moderately severe clinical range at the final visit ($M = 14.38$, $SD = 7.39$). This reduction in depression scores between the first and final visit was statistically significant, $t(46) = 2.579$, $p = 0.013$. Among those patients who were reached for subsequent follow-up, depression scores fell in the moderate clinical range ($M = 11.19$, $SD = 6.84$). The reduction in average depression scores between the final primary care psychology visit and follow-up was statistically significant, $t(46) = 2.812$, $p < .05$. About half of patients ($N = 23$, 48.9%) also reported clinically significant improvement in their depression at follow-up; that is, a reduction of 5 points or more (one clinical range) in the PHQ-9 score.

For other eligible patients who could not be reached for follow-up, the average final PHQ-9 score was 14.02, also in the moderate to moderately severe range, with a standard

deviation of 6.64. There was no significant difference between this group and the group of patients reached for follow-up in average final-visit PHQ-9 scores, $t(100) = -0.294, p = 0.769$, suggesting that our sample was representative. See Tables 2 and 3.

At the first visit to primary care psychology, the average patient's GAD-7 anxiety score fell on the cusp of the moderate and moderately severe clinical ranges ($M = 14.15, SD = 5.33$). No significant difference in initial visit GAD-7 scores was found between the group of patients successfully reached for follow-up program evaluation and those who were not, $t(102) = -1.155, p = 0.251$.

Average GAD-7 anxiety scores for patients in the sample were in the moderate range at the final visit ($M = 12.52, SD = 6.33$). This reduction in anxiety scores was statistically significant, $t(45) = 2.236, p < .05$. Among other eligible patients who could not be reached for follow-up, the average final GAD-7 score was 13.22 ($SD = 5.77$), also in the moderate range. No significant difference was observed in average final-visit anxiety scores between the sample of patients surveyed and other eligible patients who could not be contacted, $t(99) = 0.612, p = 0.542$, see Table 2. The scores of patients who were reached for follow-up fell in the mild range at that time ($M = 9.51, SD = 5.89$). The reduction in average patient anxiety scores from final visit to follow-up was also significant, $t(45) = 3.294, p < .005$. 16 patients (34.0%) achieved clinically significant improvement in their anxiety. See Tables 2 and 3.

Table 2.

Average PHQ-9 and GAD-7 scores for primary care psychology patients in the follow-up sample

	First Visit	Final Visit	Follow-up
PHQ-9 score	16.15	14.38	11.19
GAD-7 score	14.15	12.52	9.51

Table 3.

Summary of comparisons between primary care psychology patients for whom follow-up data were and were not collected

	N	Gender	Age	Race	Average final visit PHQ-9	Average final visit GAD-7
Patients in sample	47	40 females (85.1%) 7 males (14.9%)	39 < age 65 (83.0%) 8 ≥ age 65 (17.0%)	33 black (70.2%) 14 white (29.8 %)	14.38, <i>SD</i> = 7.39	12.52, <i>SD</i> = 6.33
Eligible patients who could not be reached	59	47 females (79.7%) 12 males (20.3%)	53 < age 65 (89.8%) 6 ≥ age 65 (10.2%)	44 black (74.6%) 14 white (23.7%) 1 other (1.7%)	14.02, <i>SD</i> = 6.64	13.22, <i>SD</i> = 5.77

Consistent with the first hypothesis of this study, average current patient depression and anxiety scores (as measured by the PHQ-9 and GAD-7) showed a downward trend over time: they were lower at the final primary care psychology visit than the first visit, and lower still at follow-up (see Figure 1).

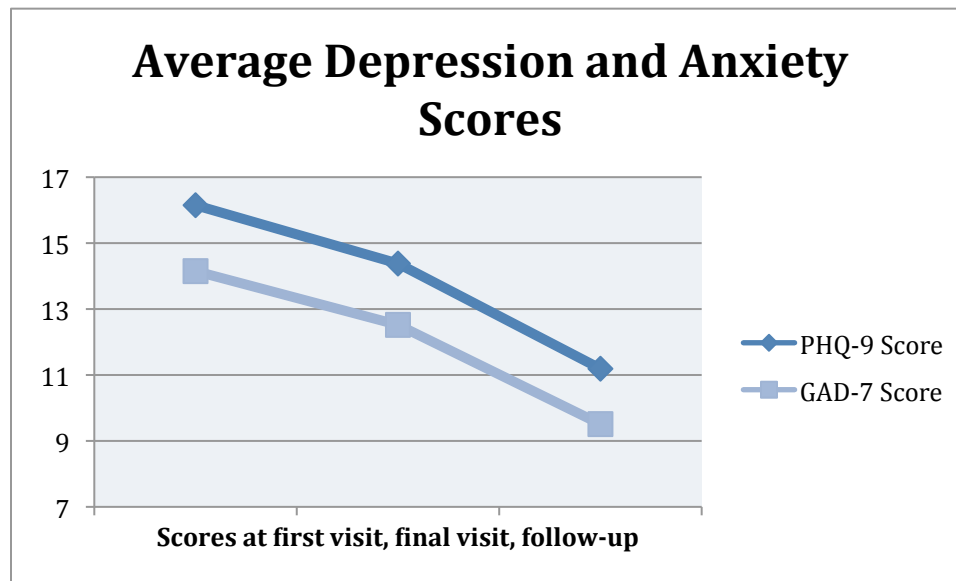


Figure 1. Average depression and anxiety scores over time.

Effect of Patient Perception of Services on Depression and Anxiety Scores

Patients who rated primary care psychology services as “moderately” or “very” helpful (a three or four on the four-point Likert scale used for the telephone interview) showed significantly more reduction in their average PHQ-9 depression scores than those who rated services as “not at all” or “a little bit” helpful, $t(46) = -3.609, p < .005$. Patients who rated services as “moderately” or “very” helpful also showed significantly more reduction in their average GAD-7 anxiety scores than their less-satisfied counterparts, $t(45) = -3.391, p < .005$. Consistent with the second study hypothesis, patients who rated the helpfulness of services more highly showed significantly more improvement in their depression and anxiety symptomology compared with those whose ratings were lower.

Effect of Interim Treatment on Patient Depression and Anxiety Scores

Of those patients surveyed, 28 (59.6%) denied receiving additional mental health services since their last primary care psychology visit. Of the remaining 19 (40.4%) who were provided with additional mental health treatment in the interval between their final primary care psychology visit and the follow-up call, 11 (57.9% of those receiving services) received psychotropic medication, 3 (15.7%) received counseling, and 6 (31.6%) received both. The average change in participant PHQ-9 scores from final visit to follow-up was not significantly influenced by the receipt of additional mental health treatment in the interim, $F(1, 45) = 1.67, p = 0.202$. The same was true when controlling for the effect of additional treatment on participant GAD-7 scores, $F(1, 44) = 2.26, p = 0.140$. These results confirm the hypothesis that improvements in patient depression and anxiety scores would remain significant even when controlling for the receipt of other mental health treatment in the interim.

Reasons for Discontinuing Treatment

At follow-up patients were asked to rate the perceived helpfulness of primary care psychology services on a Likert scale from one (not at all helpful) to four (very helpful). The average rating was a 3.11, with a standard deviation of .98 (see Table 3). When asked to provide the primary reason they did not return for additional primary care psychology visits, patients most often cited transportation issues, referral for outside treatment, symptom resolution, other life concerns taking precedence, and difficulty with scheduling appointments (see Table 4). Other reasons included disliking the possibility of seeing different clinicians at each visit, moving away from the Richmond area, not feeling ready for treatment, lacking motivation to seek treatment, and feeling that our services did not help. See Table 4 for a summary of all responses.

Table 4.

Patient ratings of perceived helpfulness of primary care psychology services at follow-up

Helpfulness rating	Number of patients endorsing (%)
1 (“not at all helpful”)	3 (6.4%)
2 (“a little helpful”)	11 (23.4%)
3 (“moderately helpful”)	11 (23.4%)
4 (“very helpful”)	22 (46.8%)

Table 5.

Primary reason patients did not return for additional primary care psychology services

Reason given	Number of patients	% of patients
Transportation issues	12	25.5
Referred for outside services	8	17.0
Symptom resolution	7	14.9
Other life concerns/ too much going on	6	12.8
Difficulty with scheduling	4	8.5
Disliked changing clinicians	2	4.3
Moved away	2	4.3
Not ready for treatment	2	4.3
Depressed/lacked motivation	2	4.3

Services not helpful	1	2.1
Don't know	1	2.1

Discussion

This study served as a follow-up evaluation of primary care patients provided with psychology services for depression and/or anxiety through the Ambulatory Care Clinic of VCU's Medical Center in Richmond, Virginia. A description of the patient population was presented, as well as data on changes in patient depression and anxiety scores over time. This study offers further support for the effectiveness of mental health services provided in primary care settings for underserved and underinsured populations, a demographic that has been shown to be under-diagnosed and under-treated (Callahan et al., 1996; Regier, Goldberg, & Taube, 1978). Furthermore, while the short-term efficacy of brief mental health interventions in primary care settings is well established in the literature, little is known about how well, and for how long, gains are maintained when patients leave treatment. To date there are only two follow-up studies in the literature, besides the present study, that assess post-termination durability of primary care treatment effects (Davis et al., 2008; Ray-Sannerud et al., 2012). Preliminary findings from these three studies provide a valuable reference point for future research.

Sample Characteristics

Patients in the study sample were predominantly African American females, in numbers consistent with the clinic primary care population at large, and with a previous psychology program evaluation conducted in the same clinic (Sadock et al., 2014). Analyses comparing patients contacted for follow-up with those patients who were eligible but could not be contacted revealed no significant differences in the anxiety or depression scores of the two groups at their first and final visits. Thus, a strong argument can be made that the study sample provides an

accurate snapshot of patients seen for services by the primary care psychology clinic. African Americans are more likely than their Caucasian counterparts to seek mental health treatment from their primary care physician versus an outside clinic or a psychiatrist (Snowden, 2001; Snowden & Pingitore, 2002), making it particularly important to encourage these patients to participate in primary care mental health treatment. Study results are encouraging, suggesting that a target underserved population (Stockdale, Lagomasino, Siddique, McGuire, & Miranda, 2008) is being reached by the VCU primary care psychology clinic.

Some unique demographic factors were noted in our patient population. The patients interviewed did not have private insurance; they were uninsured, enrolled in Medicare or Medicaid, or received VCU Medical Center's care plan for the underserved. Just under half of respondents were either receiving or in the process of applying to receive disability benefits.

Time Elapsed Between Final Visit and Follow-Up

The database for this study contains data obtained from VCU Medical Center primary care patients referred to the psychology clinic for anxiety and/or depression whose final visit fell between six and 18 months prior to the follow-up call date. Attempts were made to contact the 106 patients meeting these criteria during the data collection period, yielding interviews with 47 respondents who had telephone numbers that were still in service, answered the phone, and agreed to participate. The average follow-up interval between patients' most recent appointments with primary care psychology and the study phone call was about 10 months. The rationale for contacting patients no sooner than six months after their most recent appointment was to accommodate for the more intermittent nature of visits in a course of primary care psychology treatment. Patients in the clinic are commonly recommended to follow up at biweekly, monthly, or even less frequent intervals. Thus, the relatively conservative six-month parameter was set in

an effort to capture data only from those patients who had truly discontinued their treatment or been lost to follow-up. Unlike two other primary care psychology follow-up evaluation studies which collected data on patients up to 30 months (Davis et al., 2008) or three years (Ray-Sannerud et al., 2012), after treatment was completed, for this study data was only collected on primary care anxiety and depression patients up to 18 months after discontinuation of treatment. The more time passes, particularly if patients receive other mental health treatment in the interim, the more tenuous the claim that mental health maintenance and/or gains is due to a brief course of primary care treatment (recall that patients in this study received just over four treatment sessions on average).

Changes in Patient Depression and Anxiety Scores

Patients showed statistically significant reduction, on average, in their PHQ-9 depression and GAD-7 anxiety scores between their final primary care psychology appointment and follow-up. About half (48.9%) of patients reported clinically significant improvement (reduction by at least 5 points or one clinical range) in their depression scores; over one-third (34.0%) experienced clinically significant reduction in anxiety symptoms. These findings align with research demonstrating reduced symptomology through a course of primary care psychology treatment (e.g., Davis, Corrin-Pendry, & Savill, 2008; Corso et al., 2009; Sadock et al., 2014), and further support general findings that time-limited therapeutic approaches can be just as effective as longer-term methods (Steenbarger, 1994). Furthermore, another recent program evaluation comparing VCU Medical Center Primary Care Psychology patients with matched controls demonstrates that a large subset of patients worsen over time without treatment; nearly half of matched-control patients (46.8%) had increased PHQ-9 scores, while 39.6% scored higher on the GAD-7 (Sadock et al., 2014). These preliminary results suggest that, even in the

absence of considerable treatment gains, primary care psychology services help a substantial portion of patients to maintain their current level of symptomology, preventing them from decompensating further.

This study also expands the literature by examining whether clinical gains can be maintained following conclusion of treatment. Preliminary findings by Ray-Sannerud et al. (2012), who evaluated patients 18 months to three years post-treatment, suggest that clinical gains can be maintained up to two years post-intervention. This study is the second of its kind (after Davis et al., 2008) to fill a gap in the literature, as it followed up with patients for evaluation between six and 18 months after the conclusion of treatment.

Patients who rated primary care psychology services as “moderately” or “very” helpful showed significantly more reduction in their average PHQ-9 depression scores and GAD-7 anxiety scores than those who rated services as “not at all” or “a little bit” helpful. Thus, patients who rated the helpfulness of services more highly showed significantly more improvement in their depression and anxiety symptomology compared with those whose ratings were lower.

Effect of Interim Treatment on Patient Depression and Anxiety Scores

About 40% of patients in the study (N = 19) indicated that they had received additional mental health treatment (psychotropic medication, counseling, or both) during the time between their final primary care psychology visit and the follow-up call. Results indicated that treatment gains made over the course of treatment with primary care psychology, as measured by PHQ-9 depression and GAD-7 anxiety scores, were not significantly influenced by subsequent mental health treatment. One of the two other extant follow-up studies of primary care treatment effect durability had similar findings, with gains from brief intervention maintained for approximately two years post-treatment (Ray-Sannerud et al., 2012). While brief interventions are generally

well validated empirically, further evidence is needed of their long-term efficacy in a primary care setting.

Reasons for Discontinuing Treatment

Patients were asked at follow-up to rate the perceived helpfulness of primary care psychology services on a Likert scale from one (not at all helpful) to four (very helpful). The average rating was a 3.11 ($SD = .98$). Consistent with these results, only one of the patients surveyed indicated that their primary motivation for discontinuing services was because they felt primary care psychology services were not helpful. However, patients often cited logistical issues such as problems with transportation or difficulty scheduling appointments as the main reason they did not return for additional primary care psychology visits. Such difficulties are common among the low-income, under- or un-insured populations for whom primary care psychology services may be the only mental health care option available. A primary argument in favor of integrating mental health care services into a medical setting is that it often proves more accessible to patients with transportation difficulties, e.g., by allowing them to double up on appointments in one trip (Rowan & Runyan, 2005). However, patient responses in this study indicate that integrated care is not a panacea, and point to a continued need for accessible mental health care outside of urban city centers such as Richmond.

Several patients ($N = 6$, 12.8%) reported that they had other life concerns or stressors had precluded their return to treatment. This is consistent with a previous program evaluation carried out in the same clinic, in which the average patient scored between the 70th and 75th percentile on the Social Readjustment Rating Scale – Revised form, which asks respondents to indicate how many of 51 possible stressful life events they have experienced in the past year (Sadock et al., 2014).

The remainder of patients reported miscellaneous reasons for discontinuing treatment, including symptom resolution, moving away from the Richmond area, our inability to guarantee seeing the same clinician at each visit due to our team-based model, referral to more appropriate outside treatment, or not feeling ready/lacking motivation to continue treatment. Overall, since only seven (14.9%) of the 47 patients reported discontinuing treatment primarily due to symptom resolution, it is clear that a variety of barriers still prevent patients from receiving what they feel is an adequate course of mental health care.

Study Limitations

The most notable limitation of this study is its small sample size. Future studies should employ larger samples in order to achieve adequate statistical power for more sophisticated analyses. This will allow for better, more accurate snapshots of individual trajectories over time, versus average group trends. Furthermore, this study did not utilize a control group for comparison of treatment gains, relying instead on the examination of within-subject changes in a single group, without comparison data. The most easily accessible control groups would have been random sample of anxious and/or depressed primary care patients from our clinic who were not receiving mental health services. However, a study design calling for denial of treatment to those in immediate distress raises ethical concerns, hence the single-group design of the present study.

The database for this study was created via electronic medical chart review from each patient's psychology visit notes. Due to the fast-paced nature of the integrated mental health care setting, where psychologists must often address multiple patient concerns and apply several interventions within the confines of a half-hour session, different interventions may be employed for the same presenting problem (e.g., for depression, behavioral activation, pleasant activity

scheduling, or cognitive-behavioral thought-stopping). The intervention that is selected may be dependent on patient preference, clinician perception of patient preference, clinician comfort with administration of the intervention, and a host of other factors. For the sake of future studies, interventions should be better defined in notes. Future researchers might also consider consenting patients up-front for a brief manualized course of treatment for depression or anxiety.

For ease and consistency in data collection, all follow-up evaluations were “cold calls.” Instead of leaving messages requesting a call back, subsequent attempts were made to contact study participants, thus eliminating concerns about potential sample bias (e.g., not capturing information from the most depressed patients because they were too incapacitated to call back). As is not uncommon in lower-income populations, patients’ contact numbers were occasionally out of service. It could be argued that those patients who were more difficult or impossible to contact are likely to represent a subgroup of transient and high-stress individuals who remained highly depressed and/or anxious following primary care psychology treatment, which could have affected the significance of study results.

Another common research concern is the accuracy of patient reporting. Some research suggests over-reporting of symptoms by patients seeking disability compensation (Samuel & Mittenberg, 2005). At follow-up, approximately one-quarter (23.4%) of patients evaluated were in the process of applying for disability services. This information was not recorded during patient session visits as standard practice, however. In the future, clinicians should routinely ask patients about their disability application status so that this variable can be accounted for in statistical analyses.

Study Strengths

A major strength of this study is that it is only the third follow-up program evaluation in

the literature that examines the durability of short-duration mental health treatment effects in an integrated primary care setting. It is the second to evaluate patients within the first year and a half of discontinuing services, as the other extant study surveyed those who had not been seen for 18 months to three years (Ray-Sannerud et al., 2012). Thus, the complementary findings of these three initial follow-up evaluations lay a basic groundwork for future studies seeking to examine the longer-term durability of treatment effects from very brief primary care psychology interventions. Long-term durability of treatment effects is particularly important when examining integrated services that are brief and frequently do not include a final measurement of treatment outcome because patients are given permission and sometimes encouragement to cancel subsequently scheduled sessions if they are satisfied with their symptom improvements. Thus, real-world studies (e.g., Sadock et al., 2014) that utilize chart data are likely to underestimate treatment gains.

Additionally, the present study collected information on additional treatments and analyzed the impact of these treatments on outcomes. This was also done in the more recent of the two extant follow-up studies in the literature (Ray-Sannerud et al., 2012), but was not considered in earlier work (Davis, 2008).

Another strength of the present study was the rate of participation by patients who were reached by telephone. Of those successfully reached (N = 49), only 2 declined to contribute, for a participation rate of just under 96%. Davis and colleagues (2008), by comparison, received responses from approximately 40% of eligible patients contacted, while Ray-Sannerud et al. (2012) only received responses from 10.5% of the potential participants contacted for their study.

The representative characteristics of the patient sample are also a significant strength of the study, as is its external validity. Like a significant portion of patients seen for primary care

psychology services, the plurality of patients in our sample were lower income, female, and African-American. No exclusionary criteria aside from the presence of depression and/or anxiety symptoms were applied in constructing the database of patients for the present study. The measures administered to patients are extensively validated among primary care populations and are often used in such settings for both clinical and research purposes. At the time of administration, neither the patients nor the trainee psychologists were aware that the data would be used in a research retrospective, effectively eliminating concerns regarding demand characteristics. Given these considerations, data from this study can be considered a meaningful snapshot of typical consumers of primary care psychology services through the VCU Medical Center.

The quantitative nature of this study is an additional asset. Other research on primary care psychology has focused on qualitative description of treatment models, interventions, and patient concerns (Edwards, Garcia, & Smith, 2007; Funderburk et al., 2011; Funk & Ivbijaro, 2008; Lopez et al., 2008), in contrast to the present study's focus on quantifiable data describing patient interactions, visit foci, reasons for discontinuing treatment, and rating of satisfaction with services. The primary care psychology literature is young, with many avenues of inquiry remaining under-researched; this study adds to the knowledge base by presenting additional objective data on patients.

Future Directions

This study served as a follow-up evaluation of primary care patients provided with psychology services for depression and/or anxiety through the Ambulatory Care Clinic of the Virginia Commonwealth University Medical Center in Richmond, Virginia. To date it is only the third study in the literature that assesses post-termination durability of primary care treatment

effects, and the first within its particular time frame of six to 18 months post-treatment.

Additionally, these patients represent a more reasonable estimate of true treatment progress because of the high rate of participation among patients who were able to be contacted relative to previous studies (Ray-Sannerud et al., 2012; Davis et al., 2008). Preliminary findings from both of these studies provide a valuable reference point for future research. Future studies would benefit from larger sample sizes, and data should be recorded at regular post-treatment intervals for all patients who are treated to better document the trajectory of patient progress.

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Appendix A

Phone Script for follow-up evaluation with primary care patients, with PHQ-9 and GAD-7

If needed:

- *If they're suspicious, drop a few names – you were referred for care by Dr X.*
- *If they ask about your credentials – I am a trainee under Dr.s Rybarczyk and Cuseo-Ott, they're my supervisors. If you'd like to call them the # is 828-1675.*

Hello X, my name is Renée and I'm calling from VCU to follow up on the care sessions we gave you at the Primary Care Center for enhancing your behavioral and emotional health. Do you have about ten minutes to talk? (*If no:* When would be a good time for me to call back?) Does this sound OK/shall we proceed?

Just as a reminder, we provided X sessions to you in MONTH(S) of YEAR(S). What I'd like to do today is check in and see how you're doing by asking you the same questions we asked you in the clinic to take your "mood temperature." Your answers will help us to evaluate our services and see how people are doing long-term. Everything you tell me today will be confidential and won't be shared with anyone without your permission.

Administer GAD and PHQ-9

GAD-7 Anxiety

Over the last 2 weeks, how often have you been bothered by the following problems? <i>(Use "X" to indicate your answer)</i>	Not at all	Several Days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worry	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen	0	1	2	3

2. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? (PLEASE CIRCLE)

Not difficult at all

Somewhat difficult

Very difficult

Extremely difficult

PHQ-9 Depression

Over the last 2 weeks, how often have you been bothered by any of the following problems? <i>(Use "X" to indicate your answer)</i>	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

2. If you checked off any problem on this questionnaire so far, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? (PLEASE CIRCLE)

Not Difficult At All Somewhat Difficult Very Difficult Extremely Difficult

Now I'd like to know how helpful our services were to you in addressing your mental health concerns. You can be honest, we're just trying to learn more. Did you feel our services were: not at all helpful (1), a little helpful (2), medium/moderately helpful (3), or very helpful (4) to you?

Next, can you tell me the main reason why you didn't come back to see us? For example, did the problem get better, or did you start getting care somewhere else?

I'd also like to know if you've gotten any other treatment for your mental health since you came to see us. (*If yes:* What sort of treatment, medication or counseling? Was it from someone else at MCV, or did we refer you?) Are you applying for disability?

Finally, can you tell me whether you are still a patient with the Ambulatory Care Center at VCU? (*If yes:* Would you like me to put your "mood temperature" scores in your chart to help update

your doctor on how you are doing? Up to you. Be sure to tell them how you're feeling either way the next time you see them, because they don't always have a chance to see the notes before they sit down with you in your appointment.)

*****If pt scores a 10 or above on GAD and/or PHQ and is still a pt at the ACC*****

OK, so from what you've told me about your mood these days it looks like you are still experiencing some distress and might want to consider getting more treatment. Before I let you go I just want to make sure you know that you can come see us any time for an appointment.

- Would you like the clinic number (828-9357), or a referral number for the Community Services Board (330-3141)?

*****If pt scores a 10 or above on GAD and/or PHQ and is no longer at the ACC:*****

OK, so from what you've told me about your mood these days it looks like you are still experiencing some distress and might want to consider getting more treatment.

- Would you like a referral number for the Community Services Board (330-3141)?

*****If pt reports suicidality:*****

You said that you are having suicidal thoughts. I want to make sure that you are safe. Is there someone you could call for support? Here are numbers for national suicide hotlines: 1-800-784-2433 or 1-800-273-8255. If you are unsafe, it is always best to call 911. If you want to go to counseling, I can provide you with some local resources (see below).

Thank you so much for your time, X. Have a great day!

Counseling Services – Referral Information

Community Services Boards

Richmond Behavioral Health Authority (City of Richmond)
Counseling and psychiatry services: (804) 819-4000
Emergency services: (804) 819-4100
<http://rbha.org/child-mental-health.htm>

Hanover County
All Services (Emergency included): (804) 365-4200
<http://www.co.hanover.va.us/csb/default.htm>

Henrico County
Counseling and psychiatry services: (804) 727-8500
Emergency services: (804) 727-8484
<http://www.co.henrico.va.us/mhmr>

District 19 (Petersburg and Tri-Cities)
Counseling and psychiatry services: (804) 863-1689
Emergency services: (804) 862-8000
<http://www.d19csb.com>

Chesterfield County
Counseling and psychiatry services: (804) 768-7203
Emergency services: (804) 748-6356
<http://www.chesterfield.gov/content.aspx?id=319>

4

Therapy Clinics

Accept Medicaid or affordable sliding fee scale

Center for Psychological Services and Development
612 North Lombardy Street, Richmond, VA 23284
(804) 828-8069 • <http://www.has.vcu.edu/psy/cpsd/>

Jewish Family Services: *Accepts families of all faiths*
6718 Patterson Ave, Richmond, VA 23226
(804) 282-5644 x 234 • <http://www.jfsrichmond.org>

Dominion Behavioral Healthcare
Midlothian: Courthouse Rd (804) 794-4482; Harbor Pointe (804) 639-1136
West End: Pembroke Medical Center (804) 270-1124

Therapy Clinics

Accept Private Insurance

Westhampton Family Psychologists
1503 Santa Rosa Rd, Suite 105 Richmond, VA 23229 (*Near West End*)
(804) 673-0100 • <http://wfp-help.com>

Commonwealth Counseling Associates
Locations in Hanover, West End, and Chesterfield
(804) 730-0432 • <http://www.commonwealthcounseling.com>

The Westwood Group
Locations in Southside, West End
(804) 264-0966 • www.thewestwoodgroup.org

If it is an emergency: CALL 911

Suicide Hotlines: 1-800-784-2433 or 1-800-273-8255

Vita

Renée Marie Grinnell was born on September 8, 1985 in Concord, New Hampshire and is an American citizen. She graduated from Central High School, Manchester, New Hampshire, in 2004. She received her Bachelor of Arts in Psychology from Cornell University, Ithaca, New York in 2008 and subsequently worked for two years as a research assistant in the Psychosocial Research Department of Butler Hospital, Alpert Medical School of Brown University, Providence, Rhode Island. She is currently a student in the clinical psychology doctoral program at Virginia Commonwealth University, concentrating in behavioral medicine.