J Clin Psychol Med Settings (2012) 19:105–116
DOI 10.1007/s10880-011-9285-9

# Implementation of Primary Care-Mental Health Integration Services in the Veterans Health Administration: Program Activity and Associations with Engagement in Specialty Mental Health Services

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Published online: 2 March 2012


**Abstract** This paper describes the status of the Veterans Health Administration (VHA) Primary Care-Mental Health Integration (PC-MHI) services implementation and presents an assessment of associations between receipt of PC-MHI services and likelihood of receiving a second specialty mental health (SMH) appointment following an initial SMH encounter. The total PC-MHI service recipients and encounters/month rose substantially between October 2007 and April 2011. Adjusting for important covariates, the likelihood of receiving a second SMH encounter within 3 months of an index SMH appointment was 1.37 times greater among individuals who had received a PC-MHI encounter within 3 months of the initial SMH appointment. Implementation of VHA PC-MHI services has substantially increased VHA capacity to deliver mental health services in primary care and findings indicate that PC-MHI services are associated with greater engagement in SMH treatment. Implementation of VHA PC-MHI services is progressing with new technical assistance strategies being deployed.

**Keywords** Primary care · Mental health · Engagement · Veterans

This paper is based in part on a presentation title "*Veterans Health Administration Initiatives in Integrated Care*" offered by the lead author at the 5th National Conference for the Association of Psychologists in Academic Health Centers in Boston Massachusetts in March 2011.

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Psychiatric and behavioral health conditions in primary care patients are associated with increased health services utilization and medical costs (Insel, 2008; Murray & Lopez, 1996; Regier et al., 1993; Simon, Ormel, Von Korff, & Barlow, 1995), increased complications in the care of comorbid medical illness (Institute of Medicine, Institute of Medicine 2001; Wells et al., 1989), and reduced quality of life (Bush et al., 2005). Most evidence-based interventions to address mental health diagnoses have been designed for specialty mental health settings; however, many patients decline referrals for treatment or never attend a specialty mental health appointment (Speer & Schneider, 2003; Zanjani, Miller, Turiano, Ross, & Oslin, 2008). To address these concerns, the Department of Veterans Affairs (VA) health system, the Veterans Health Administration (VHA) has supported extensive efforts to enhance health care services for Veterans by integrating

mental health staff and services into primary care clinics (Zeiss & Karlin, 2008).

In both VA and other agencies, strategies to enhance mental health service delivered in primary cares settings include (1) co-located collaborative care (CCC) and (2) care management (CM). Co-located collaborative care involves the co-location of mental health professionals in primary care settings, where primary care medical providers collaborate with CCC providers to meet the mental health assessment and treatment needs of primary care patients (Hunter, Goodie, Oordt, & Dobmeyer, 2009; Pomerantz, Cole, Watts, & Weeks, 2008; Strosahl, Baker, Braddick, Stuart, & Handley, 1997). Care management involves coordination of services and appointments, monitoring of response to psychotropic medication, ongoing administration of structured instruments to assess response to interventions, patient education/activation, and facilitation of effective communication between primary care and mental health providers to make changes in patients' treatment as needed (Hedrick et al., 2003; Oslin et al., 2003). As developed, CCC programs have been staffed with independent mental health practitioners and most often are designed to address any mental health need, including health behavior change and mental health concerns found in primary care (Butler et al., 2008; Funderburk et al., 2010; Pomerantz et al., 2008). Care management programs have focused on the application of evidence-based algorithms and the use of measurement-based care to improve the quality of care delivered for highly prevalent mental health conditions, such as depression (Butler et al., 2008). These two approaches have been applied independently as well as in tandem. Recent studies have evaluated interventions where CCC and CM components were blended and compared with usual care (Krahn et al., 2006; Unützer et al., 2002). This integration of mental health and primary care has been associated with improved clinical outcomes, such as greater reduction of clinical symptoms and improved functional outcomes (Butler et al., 2008; Hedrick et al., 2003; Unützer et al., 2002).

In 2006, VHA began system-wide efforts to implement mental health services in primary care by calling for proposals for special funding to initiate the integration of mental health services into primary care (Zeiss & Karlin, 2008). These efforts were undertaken to provide specific benefits to Veterans receiving care in VHA primary care settings. These benefits include: (1) providing mental health services in a setting that is preferred by patients and where stigma is decreased (Chen et al., 2006); (2) enhancing recognition of mental health conditions in primary care (Karlin & Fuller, 2007; Zivin et al., 2010); (3) increasing access to mental health care and the rates of treatment (Bartels et al., 2004; Brawer et al., 2010; Hedrick et al., 2003; Lui et al., 2003), and; (4) decreasing the number of patients who did not attend their first mental health appointment after agreeing to referral (Speer & Schneider, 2003).

In order to fully attain these benefits, in 2008 VHA policy makers included Primary Care-Mental Health Integration (PC-MHI) services as part of the mandated mental health treatment standards for VHA facilities described in the "Uniform Mental Health Services Handbook" (Department of Veterans Affairs, 2008). Requirements for PC-MHI services vary depending on facility type and size. For example, at all VA medical centers and at community based outpatient centers serving at least 5,000 Veteran patients/year, sites are required to have blended programs that include both co-located collaborative care and care management components. VHA has invested in multiple local and national PC-MHI program implementation efforts. These include program training conferences, monthly conference calls, ongoing program monitoring, and program-specific reports based on national program evaluation survey data. VHA uses ongoing measurement and evaluation of services to ensure its quality improvement goals are achieved (Longman, 2007).

As described above, VHA policy makers targeted PC-MHI implementation in order to attain a variety of quality improvements. One such improvement is increased engagement in specialty mental health services for patients who are in need of treatment. Because patients who are referred to specialty mental health treatment often do not attend a first appointment (Oslin, Ross, et al., 2006; Speer & Schneider, 2003), collaborative care efforts frequently include a focus on removing barriers to engage in services or referral management strategies (Bartels et al., 2004; Williams et al., 2007; Zanjani et al., 2008). Two frequently cited studies of collaborative care are the Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) (Unützer et al., 2002) and the Primary Care Research in Substance Abuse and Mental Health for the Elderly (PRISM-E) studies (Krahn et al., 2006). Both studies noted that by working collaboratively, mental health and primary care providers could increase the likelihood that patients would engage in treatment for their depression. In these studies, care managers provided follow-up to ensure that patients were taking medications or engaging in other recommended activities. For IMPACT, a carefully controlled randomized trial of care management for depression, those in the intervention were 3–4 times more likely to have received psychotherapy or specialty mental health visits at every time point after the intervention (Unützer et al., 2002). They were also more likely to maintain adherence to antidepressant treatment (Hunkeler et al., 2006). The PRISM-E study showed an increase in the percentage of patients who engaged in treatment (71 vs. 49%) when patients were involved in an integrated program as compared to usual care. Methods in the PRISM-E study included co-located, collaborative mental health professionals in primary care in addition to care management. Engagement in this study was

defined as having attended at least one appointment with a mental health or substance abuse provider. More recently, Zanjani et al. demonstrated that a targeted referral management program resulted in engagement in at least one psychiatric treatment appointment for 70% of patients as compared to 32% of patients in usual care with direct referral to specialty mental health from a primary care provider.

The present paper reports two related analyses. The first describes the current status of VHA PC-MHI services implementation and trends in PC-MHI services delivery in the VHA health system from October 2008 through April 2011. Recent national PC-MHI evaluation survey findings regarding program characteristics and VHA's national administrative data were used to examine the volume of services provided, as measured by the number of unique Veterans seen and the number of PC-MHI encounters delivered. Current staffing, activities and diagnoses addressed in VHA's PC-MHI programs based on reports from the national PC-MHI evaluation survey (Brockmann & McCarthy, 2011) are also described. The second group of analyses evaluates the impact of PC-MHI services on engagement in specialty mental health services, as measured by the likelihood that a patient will receive a *second* encounter in a specialty mental health care clinic. It was hypothesized that primary care patients who received PC-MHI services prior to an initial specialty mental health encounter are more likely to receive subsequent specialty mental health encounters, adjusting for patient characteristics, diagnoses, and procedures received during the initial specialty mental health encounter. Also, in a sensitivity analysis, we explored whether the discipline of the most recent PC-MHI provider seen affects engagement in specialty mental health.

## Method

### PC-MHI Program Descriptive Analyses

PC-MHI encounter records from the National Patient Care Database (NPCD), for the period of October 1, 2008, to April 30, 2011, were aggregated to provide information on PC-MHI service activity. The organizational structure of the VA health system consists of 139 sites with common administrative leadership. Several of these sites are multidivision hospitals, others are exclusively outpatient facilities. As PC-MHI services may differ across sites within a multidivision facility, the survey was administered to separate service locations where PC-MHI can be delivered. These 165 service locations were identified based on inclusion as a hospital site in the VA Site Tracking system (maintained by the VA Planning System and Support Group) or as a distinct administrative parent site (identified by the VA Office of Quality and Performance). In this paper these sites are hereafter referred to as VA medical center campuses. Data from the 2010 National PC-MHI Evaluation survey were used to provide self-reported descriptive information on the types of PC-MHI programs and services currently being offered at VA medical center campuses. Administered in the fall of 2010 as part of the VA National PC-MHI Evaluation, the survey had a 100% response rate (Brockmann & McCarthy, 2011). Descriptive statistics are presented.

### SMH Treatment Engagement Analysis

#### *Procedure*

NPCD records for 1,326,480 patients in a 30% random sample of all VHA Primary Care (PC) patients in fiscal year 2009 (FY09) were searched for encounters in SMH clinic settings. SMH clinic use was identified based on specialty mental health clinic identifiers and, in these encounters, indications of receipt of specific services (see Table 1). This procedure identified 305,931 PC patients who had some SMH care in FY09. Using their first SMH encounter of the fiscal year as the index SMH encounter, patients who had received any SMH use in the prior 12 months were excluded. The dates when patients had their most recent PC encounter and, if any, PC-MHI service encounters in the 12 months prior to their index SMH

**Table 1** Encounter codes used to categorize specialty mental health care

| Service | Encounter codes |
|---|---|
| Psychiatric diagnostic interview | 90801, 90802 |
| Individual therapy | 90804–90819, 90821, 90822, 90862 |
| Group therapy | 90853, 90857 |
| Family therapy | 90846, 90847, 90849, 90887 |
| Biofeedback | 90901, 90911 |
| Psychological testing | 96101–96103, 96110, 96111, 96116, 96118–96120, 96125 |
| Pharmacological management | M0064, 90862, 90865, 90870, 90875, 90876, 90880, 90882, 90887 |
| Alcohol and drug services by unlicensed providers | H0001, H0004–H0006, H0020, H0024, H0031, H0047, H0050 |
| Other[a] | 90899, G0176, G0177 |

[a] Includes unlisted psychiatric service, activity therapy and training and education services

encounter was recorded. Patients with no PC encounter in the year prior to their index SMH encounter were excluded, whether or not they had a PC-MHI encounter in that year. The final analytic dataset included 92,190 individuals.

The primary outcome of interest in the engagement study was whether or not individuals returned for subsequent SMH care in the 3 months following their index SMH encounter. Telephone encounters were excluded, as these may be more under the control of the SMH professionals than the patient. Table 1 provides a list of the encounter codes used to categorize SMH care.

Patient characteristics (age, sex, race, hispanic ethnicity, marital status, and military service connected disability status) were assessed from inpatient and outpatient encounter records. Mental health diagnoses (major depressive disorder, other depression, post traumatic stress disorder, other anxiety disorders, alcohol abuse or dependence, substance abuse or dependence, bipolar disorder, schizophrenia, personality disorders and other mental health diagnoses) and procedures (psychiatric diagnostic interview, psychotherapy, group therapy, family therapy, psychological testing, pharmacological management, alcohol or drug services and other services) from the index SMH encounter were categorized and recorded. The timing of the most recent prior PC and PC-MHI encounters was also included. For PC-MHI encounters, the discipline listed in the primary provider field of encounter records was recorded and categorized as psychologist, psychiatrist, advanced practice nurse/physician assistant, social worker, registered nurse, or other (counselors, non-RN nurses, health technicians, residents, non-psychiatric physicians, and pharmacists).

### *Statistical Analyses*

Means, frequencies, T and $\chi^2$ tests were used to describe differences between patients engaging in a second SMH clinic visit and those who did not engage in a second visit. Multivariable logistic regression was used to estimate the effect of prior PC-MHI encounters on receiving SMH follow-up, adjusting for differences in patient demographics, diagnoses and therapies during the index SMH encounter. In a sensitivity analysis limited to those patients who had received PC-MHI services in the year prior to their initial SMH encounter, the effect of the discipline of PC-MHI provider was evaluated using multivariable logistic regression. All analyses were performed using SAS version 9.2 (SAS Institute, inc., Cary, NC).

## Results

As shown in Fig. 1, there have been substantial increases in volume of documented PC-MHI encounters in the VHA since

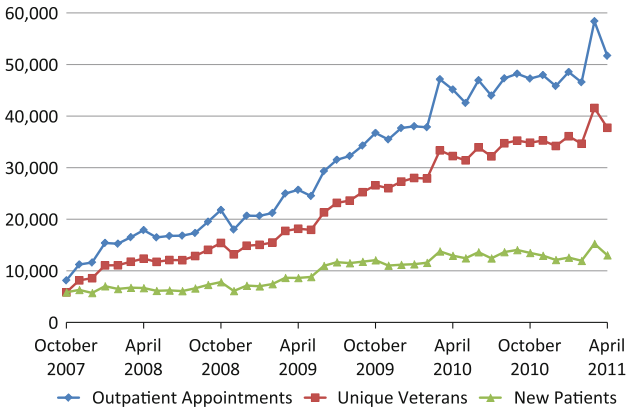


**Fig. 1** Monthly total PC-MHI outpatient encounters, unique patients receiving PC-MHI, and patients with an initial PC-MHI encounter, October 2007 through April 2011

initiation of program-specific encounter codes in October 2007. For example, in each month since June 2009, at least 10,000 new patients received documented PC-MHI services for the first time. Further, by the final month of the observation period, April 2011, PC-MHI services were received by 37,729 individuals, with a total of 51,682 PC-MHI encounters. Figure 2 presents total cumulative documented PC-MHI encounters and PC-MHI care recipients, by month. By April 2011, the total cumulative number of PC-MHI encounters was 1,340,776 and 425,662 unique patients had received PC-MHI services. Of this group, 268,200 patients, who had their first PC-MHI encounter before April 2011, had a total of 796,689 PC-MHI encounters within 1 year of their first PC-MHI encounter. For this group of patients, there were on average 2.97 encounters (SD = 3.91); the median and modal number of encounters was 1, with 50.3% of the sample having only a single PC-MHI encounter.

The programs that have been developed at VA medical center campuses are described using data from the VA's

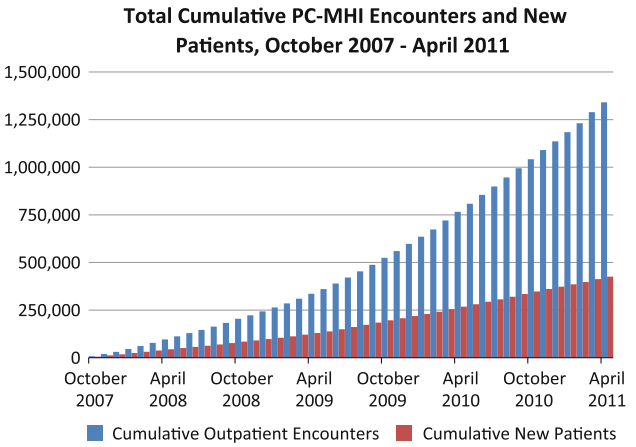


**Fig. 2** Total cumulative PC-MHI encounters and new patients, October 2007 through April 2011

2010 National PC-MHI Evaluation survey (see Table 2). Of the 165 VA medical center campuses, 160 indicated having PC-MHI programs (97%). We note that, when examined in terms of the 139 VHA administrative parent sites, 96.4% of these sites reported PC-MHI services at all of their surveyed locations, 0.7% reported PC-MHI at some but not all of their surveyed locations, and 2.9% reported no PC-MHI services at any location. Among those medical center campuses that reported having PC-MHI services, 46% reported having both CCC and CM components, 44% indicated having only CCC components, and 4% reported having only CM in place. Six percent reported no specific approach being employed. The majority of PC-MHI staff members had treatment offices co-located within primary care clinics. Of the campuses reporting a PC-MHI program was in place, 63.5% reported that all of their PC-MHI staff members' treatment offices were co-located in the primary care clinic and 31.25% reported that some but not all of their treatment offices were co-located. Seventy-three percent of campuses with co-located PC-MHI prescribing staff reported that all of these staff members were co-located. Similarly, 82% of sites with co-located psychotherapy staff reported that all of these staff were co-located. Virtually all of the campuses that reported having PC-MHI services in place indicated that these services facilitate referrals to SMH (97%) or have direct referral and/or ability to transfer patients seen in the program to SMH

**Table 2** PC-MHI program characteristics, at VA medical center campuses reporting PC-MHI programs

| | N | % |
|---|---|---|
| Sites with PC-MHI Programs | 160 | 100 |
| Co-located collaborative care (CCC) only | 70 | 44 |
| Care management (CM) only | 6 | 4 |
| Blended CCC and CM | 74 | 46 |
| No model reported | 10 | 6 |
| Degree of co-location in primary care | | |
| All PC-MHI staff members have co-located treatment offices | 100 | 62.5 |
| Some, but not all, PC-MHI staff members have co-located offices | 50 | 31.25 |
| None of PC-MHI staff members have co-located treatment offices | 10 | 6.25 |
| All prescribing providers are co-located in primary care clinics, at sites with co-located prescribing providers | 72 of 89 | 73 |
| All psychotherapy providers are co-located in primary care clinics, at sites with co-located therapists | 97 of 118 | 82 |
| Referral-related activities reported | | |
| Facilitating or providing advice about referrals to mental health specialty care | 155 | 97 |
| Direct referral and/or transfer to mental health specialty care | 158 | 99 |
| Tracking whether referrals to specialty mental health clinics are completed | 114 | 71 |
| PC-MHI program addresses | | |
| Depression | | |
| Mild to moderate | 159 | 99.4 |
| Severe | 108 | 67.5 |
| Anxiety | | |
| Alone | 151 | 94.4 |
| Only with co-morbid depression | 9 | 5.6 |
| PTSD | | |
| Alone | 133 | 83.1 |
| Only with co-morbid depression | 12 | 7.5 |
| Alcohol misuse/abuse/heavy drinking/problem drinking | | |
| Alone | 135 | 84.4 |
| Only with co-morbid depression | 15 | 9.4 |
| Alcohol dependence | | |
| Alone | 88 | 55.0 |
| Only with co-morbid depression | 10 | 6.3 |
| Bipolar disorder | 84 | 52.5 |
| Schizophrenia | 73 | 45.6 |
| Other | 77 | 48.1 |

*PC-MHI* primary care-mental health integration

Source: VA 2010 National PC-MHI Evaluation Survey

(99%). Also, the vast majority of sites provide treatment for depression (99.4%) and anxiety (94.4%). PTSD and alcohol misuse and/or abuse were also reported to be commonly addressed by the programs (83.1 and 84.4%, respectively). Programs were less likely to indicate that PC-MHI services address alcohol dependence (55.0%), bipolar disorder (52.5%), and schizophrenia (45.6%). Some programs focused primarily on depression and reported that they address other disorders only when comorbid with depression. Nearly half of sites (48.1%) indicated addressing other conditions. This finding is likely indicative of CCC programs designed to support the primary care of any mental or behavioral health concern; PC-MHI services at these sites may also address issues such as pain, insomnia, coping with chronic illness, or medication adherence.

Table 3 presents information on average reported PC-MHI staffing for VA medical center campuses that indicated having PC-MHI programs (n=160 of 165 possible service locations). On average programs employed approximately 1.1 Full-Time Equivalent Employee (FTEE) psychologists and 0.6 FTEE masters level social workers. Involvement by psychology pre-doctoral interns and post-doctoral residents was common. On average, PC-MHI programs included 0.5 FTEE psychiatrists and 0.4 mid-level providers such as advance practice nurses with prescription privileges. Pharmacists were also likely to be involved with programs, with on average 0.1 FTEE. PC-MHI programs also employed mental health nurses (on average 0.7 FTEE), often as care managers. Health technicians (on average 0.2 FTEE) were sometimes involved, to interview patients, collect outcomes measurement information, and to help schedule and track patients.

Table 4 shows the characteristics of 92,190 primary care patients who had an index SMH clinic encounter in FY09 (10/1/08-9/30/09) but did not have a SMH clinic encounter in the prior 12 months, overall and by receipt of subsequent SMH encounters. The average age of these individuals was 55.5 years (SD = 15.7). Individuals who received a subsequent SMH encounter were significantly younger ($M = 53.8$, SD = 15.2) than those who did not ($M = 57.8$, SD = 16.1). The sample was predominantly male (92.9%). Female patients made up a significantly larger proportion (7.8%) of those who received a second SMH encounter. Overall, 67.6% were white, 18.8% were black and 5.4% were of hispanic ethnicity. For 10.7% of patients, race/ethnicity information was unknown. Race/ethnicity indicators did not differ significantly between those who received a second SMH appointment and those who did not. Overall, 47.7% were married, 31.2% were not currently married, and 20.3% were never married. Marital status differed significantly across groups, with a smaller proportion of those who received a second SMH encounter being married and a larger proportion being never married. Fifteen percent of patients had service-connected disabilities. These were significantly less common among patients who received a second SMH encounter (14.0%) than among those who did not (16.5%). The most frequent diagnosis of Veterans in the sample was one of depression (38%) with 22.0% of the sample receiving a PTSD diagnosis at the index visit. Other anxiety disorders (11.7%) and alcohol use or dependence were also common among the sample (10.4%). Receipt of any diagnosis at the index visit was more frequent in patients who returned for a second SMH visit except that receipt of a diagnosis of schizophrenia was more frequent in those that did not return

**Table 3** Self-reported PC-MHI program staffing, at VA medical center campuses reporting PC-MHI programs

| | Average number of individuals | | Average FTEEs | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| Mental health provider: psychologist/therapist | | | | |
| PhD level psychologists | 1.41 | 1.64 | 1.11 | 0.76 |
| Masters of social work | 0.75 | 1.18 | 0.62 | 0.64 |
| Psychology interns or post-doctoral fellows | 0.50 | 1.10 | 0.21 | 0.09 |
| Non-prescribing mid-level providers | 0.09 | 0.53 | 0.08 | 0.00 |
| Masters level therapists or counselors | 0.06 | 0.28 | 0.04 | 0.06 |
| Mental health provider: prescriber/pharmacist | | | | |
| Psychiatrists | 0.95 | 1.08 | 0.54 | 0.44 |
| Prescribing mid-level providers | 0.48 | 1.04 | 0.40 | 0.30 |
| Doctoral level pharmacists | 0.16 | 0.88 | 0.11 | 0.18 |
| Mental health staff | | | | |
| Registered nurses | 0.83 | 1.39 | 0.69 | 0.50 |
| Clerks | 0.39 | 0.90 | 0.31 | 0.30 |
| Health technicians | 0.28 | 1.16 | 0.23 | 0.33 |
| Other staff | 0.18 | 0.63 | 0.14 | 0.09 |

*PC-MHI* primary care-mental health integration, *FTEEs* full time equivalent employee

Source: VA 2010 National PC-MHI Evaluation Survey

**Table 4** Characteristics of the 30% sample of primary care patients initiating specialty mental health treatment in FY2009, by receipt of follow-up care

| | | | Any subsequent SMH encounters? | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Overall ($N = 92,190$) | | No ($N = 38,244$) | | Yes ($N = 53,946$) | | | | |
| | N | % | N | % | N | % | $X^2$ or T | *df* | *p* |
| Age (M, SD) | 54.4 | 15.6 | 56.4 | 16.1 | 53.0 | 15.1 | 32.9 | 78,718 | <.001 |
| Age group (N, %) | | | | | | | 1311.4 | 2 | <.001 |
| 18–44 | 22,737 | 24.7 | 8,314 | 21.7 | 14,423 | 26.7 | | | |
| 45–64 | 50,427 | 54.7 | 19,890 | 52.0 | 30,537 | 56.6 | | | |
| 65+ | 19,026 | 20.6 | 10,040 | 26.3 | 8,986 | 16.7 | | | |
| Gender | | | | | | | 120.8 | 1 | <.001 |
| Female | 6,880 | 7.5 | 2,422 | 6.3 | 4,458 | 8.3 | | | |
| Male | 85,310 | 92.5 | 35,822 | 93.7 | 49,488 | 91.7 | | | |
| Race/ethnicity (N, %) | | | | | | | 7.4 | 3 | .060 |
| White | 62,286 | 67.6 | 25,965 | 67.9 | 36,321 | 67.3 | | | |
| Black | 17,367 | 18.8 | 7,054 | 18.4 | 10,313 | 19.1 | | | |
| Other | 2,695 | 2.9 | 1,103 | 2.9 | 1,592 | 3.0 | | | |
| Unknown | 9,842 | 10.7 | 4,122 | 10.8 | 5,720 | 10.6 | | | |
| Hispanic ethnicity (N, %) | 4,953 | 5.4 | 2,064 | 5.4 | 2,889 | 5.4 | 0.1 | 1 | .783 |
| Marital Status | | | | | | | | | |
| Married | 44,015 | 47.7 | 18,626 | 48.7 | 25,389 | 47.1 | | | |
| Not Married | 28,734 | 31.2 | 12,020 | 31.4 | 16,714 | 31.0 | | | |
| Never Married | 18,756 | 20.3 | 7,332 | 19.2 | 11,424 | 21.2 | | | |
| Unknown | 685 | 0.7 | 266 | 0.7 | 419 | 0.8 | | | |
| Service connected (N, %) | 13,853 | 15.0 | 6,313 | 16.5 | 7,540 | 14.0 | 112.2 | 1 | <.001 |
| Most recent PC-MHI prior to SMH initiation | | | | | | | | | |
| Had PC-MHI on SMH date | 859 | 0.9 | 320 | 0.8 | 539 | 1.0 | 6.4 | 1 | .011 |
| Had PC-MHI 1 day to 3 months before SMH | 7,577 | 8.2 | 2,425 | 6.3 | 5,152 | 9.6 | 305.6 | 1 | <.001 |
| Had PC-MHI 4–12 months before SMH | 1,058 | 1.1 | 449 | 1.2 | 609 | 1.1 | 0.4 | 1 | .526 |
| Any PC-MHI on or in year prior to SMH | 9,494 | 10.3 | 3,194 | 8.4 | 6,300 | 11.7 | 268.1 | 1 | <.001 |
| No PC-MHI in prior year | 82,696 | 89.7 | 35,050 | 91.7 | 47,464 | 88.3 | | | |
| Most recent PC prior to SMH initiation | | | | | | | | | |
| Had PC on SMH date | 14,697 | 15.9 | 6,417 | 16.8 | 8,280 | 15.4 | 34.2 | 1 | <.001 |
| Had PC 1 day to 3 months before SMH | 67,942 | 73.7 | 27,455 | 71.8 | 40,487 | 75.1 | 122.8 | 1 | <.001 |
| Had PC 4–12 months before SMH | 9,551 | 10.4 | 4,372 | 11.4 | 5,179 | 9.6 | 80.8 | 1 | <.001 |
| Any PC on or in year prior to SMH | 92,190 | 100.0 | 38,244 | 100.0 | 53,946 | 100.0 | | | |
| No PC in prior year | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | | |
| Diagnoses recorded in the index SMH visit | | | | | | | | | |
| Any depression | 35,173 | 38.2 | 12,438 | 32.5 | 22,735 | 42.1 | 877.9 | 1 | <.001 |
| MDD | 9,586 | 10.4 | 3,165 | 8.3 | 6,421 | 11.9 | 316.0 | 1 | <.001 |
| Other depression | 25,966 | 28.2 | 9,381 | 24.5 | 16,585 | 30.7 | 427.1 | 1 | <.001 |
| PTSD | 20,320 | 22.0 | 7,033 | 18.4 | 13,287 | 24.6 | 507.2 | 1 | <.001 |
| Other anxiety disorder | 10,742 | 11.7 | 4,040 | 10.6 | 6,702 | 12.4 | 75.2 | 1 | <.001 |
| Alcohol abuse or dependence | 9,582 | 10.4 | 3,296 | 8.6 | 6,286 | 11.7 | 221.1 | 1 | <.001 |
| Substance abuse or dependence | 5,575 | 6.0 | 1,810 | 4.7 | 3,765 | 7.0 | 198.8 | 1 | <.001 |
| Bipolar disorder | 3,178 | 3.4 | 1,198 | 3.1 | 1,980 | 3.7 | 19.4 | 1 | <.001 |
| Schizophrenia | 1,882 | 2.0 | 892 | 2.3 | 990 | 1.8 | 27.7 | 1 | <.001 |
| Axis 2 diagnosis (personality disorders) | 688 | 0.7 | 287 | 0.8 | 401 | 0.7 | 0.0 | 1 | .902 |
| Other mental health diagnosis | 14,799 | 16.1 | 6,756 | 17.7 | 8,043 | 14.9 | 126.2 | 1 | <.001 |
| None of the above | 13,932 | 15.1 | 8,310 | 21.7 | 5,622 | 10.4 | 2,230.4 | 1 | <.001 |

**Table 4** continued

| | Overall ($N = 92,190$) | | Any subsequent SMH encounters? | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | No ($N = 38,244$) | | Yes ($N = 53,946$) | | | | |
| | N | % | N | % | N | % | $X^2$ or T | *df* | *p* |
| Procedures recorded in the index SMH visit | | | | | | | | | |
| Psychiatric diagnostic interview | 39,813 | 43.2 | 14,788 | 38.7 | 25,025 | 46.4 | 543.8 | 1 | <.001 |
| Individual therapy | 40,648 | 44.1 | 18,020 | 47.1 | 22,628 | 42.0 | 242.9 | 1 | <.001 |
| Group therapy | 3,465 | 3.8 | 1,159 | 3.0 | 2,306 | 4.3 | 95.8 | 1 | <.001 |
| Family therapy | 694 | 0.8 | 301 | 0.8 | 393 | 0.7 | 1.0 | 1 | .311 |
| Psychological testing | 4,174 | 4.5 | 2,801 | 7.3 | 1,373 | 2.6 | 1,182.3 | 1 | <.001 |
| Pharmacological management | 10,750 | 11.7 | 5,407 | 14.1 | 5,343 | 9.9 | 389.4 | 1 | <.001 |
| Alcohol or drug services | 3,389 | 3.7 | 1,149 | 3.0 | 2,240 | 4.2 | 83.3 | 1 | <.001 |
| Other Services | 2,562 | 2.8 | 1,118 | 2.9 | 1,444 | 2.7 | 5.0 | 1 | .025 |
| Type of PC-MHI provider seen at most recent PC-MHI prior to SMH initiation | | | | | | | 5.0 | 12.726 | .026 |
| Psychologist | 3,332 | 35.1 | 1,080 | 33.8 | 2,252 | 35.8 | | | |
| Psychiatrist | 1,325 | 14.0 | 455 | 14.3 | 870 | 13.8 | | | |
| Mid-level provider | 1,191 | 12.5 | 394 | 12.3 | 797 | 12.7 | | | |
| Social Worker | 1,713 | 18.0 | 587 | 18.4 | 1,126 | 17.9 | | | |
| Registered nurse | 1,284 | 13.5 | 478 | 15.0 | 806 | 12.8 | | | |
| Other[a] | 649 | 6.8 | 200 | 6.3 | 449 | 7.1 | | | |

*FY2009* Fiscal Year 2009, *PC-MIH* primary care-mental health integration, *SMH* specialty mental health, *PC* primary care

[a] Includes counselors, non-RN nurses, health technicians, residents, non-psychiatric physicians, and pharmacists

and receipt of a diagnosis of a personality disorder was not significantly different across the groups. Psychiatric diagnostic interview, group therapy, and alcohol and drug services were more frequently reported in the first visit for individuals who returned for a second visit. Individual therapy, psychological testing, and pharmacological management were more frequently reported in the first visit for Veterans who did not return for a second SMH visit. There was no difference between the groups in the frequency of receipt of family therapy and other services. Ten percent of those in the sample had PC-MHI contact in the 12 months prior to their first SMH visit. The type of provider seen in the PC-MHI encounter varied substantially, and more patients had a PC-MHI encounter with a psychologist (35.1%) than with any other discipline.

Table 5 presents the odds ratios (OR) and 95% confidence intervals (CI) for likelihood of receiving a subsequent appointment in SMH. Factors associated with decreased odds of engaging in a follow-up appointment were increased age, unknown race/ethnicity, service connected disability of at least 70%, psychological testing and pharmacological management during the index SMH visit. Individuals who were female, with mental health diagnoses other than personality disorders, and those receiving psychiatric diagnostic interviews, group therapy, family therapy, alcohol or drug services, or 'other' services were more likely to receive a second SMH encounter. Having received services in primary care 1 day–3 months prior to initiating SMH was associated with increased odds of returning for a second SMH visit (OR = 1.17, 95% CI = 1.12–1.22), whereas receipt of primary care on the day of the index SMH visit was not. Patients seen in PC-MHI on the day of the index SMH visit (OR = 1.18, 95% CI = 1.02–1.36) or within 3 months prior to the index SMH visit (OR = 1.37, 95% CI = 1.30–1.44) were more likely to have a second appointment than patients who were not seen in PC-MHI in the 12 months prior to their index SMH encounter. Odds of subsequent SMH encounters did not differ for those whose most recent PC-MHI encounter was 4–12 months prior to initiating SMH (OR = 0.99, 95% CI = 0.87–1.12).

In sensitivity analyses that were limited to patients who received PC-MHI services in the 12 months prior to their index SMH visit, patients whose most recent PC-MHI encounter was with a psychologist and those with a provider whose discipline was categorized as "other" were more likely to receive a subsequent encounter than were those whose most recent PC-MHI encounter was with a Registered Nurse (OR = 1.23, 95% CI = 1.08–1.42, and OR = 1.27, 95% CI = 1.03–1.56, respectively).

## Discussion

In the years since Zeiss and Karlin, (2008) described VHA efforts to integrate mental health into a variety of medical

**Table 5** Odds ratios of receipt of subsequent specialty mental health encounter

| | | 95% CI | |
|---|---|---|---|
| | OR | LCL | UCL |
| Age group (N, %) | | | |
| 18–44 | REF | | |
| 45–64 | 0.90 | 0.87 | 0.94 |
| 65+ | 0.61 | 0.59 | 0.64 |
| Gender | | | |
| Female | 1.16 | 1.10 | 1.23 |
| Male | REF | | |
| Race/ethnicity (N, %) | | | |
| White | REF | | |
| Black | 0.98 | 0.95 | 1.02 |
| Other | 1.00 | 0.93 | 1.09 |
| Unknown | 0.95 | 0.90 | 0.99 |
| Hispanic ethnicity (N, %) | 1.00 | 0.94 | 1.06 |
| Marital Status | | | |
| Married | REF | | |
| Not married | 0.99 | 0.96 | 1.02 |
| Never married | 1.01 | 0.98 | 1.05 |
| Unknown | 1.01 | 0.86 | 1.19 |
| Service connected (N, %) | 0.77 | 0.74 | 0.81 |
| Most recent PC-MHI prior to SMH initiation | | | |
| No prior PC-MHI | REF | | |
| Had PC-MHI on SMH date | 1.18 | 1.02 | 1.36 |
| Had PC-MHI 1 day to 3 months before SMH | 1.37 | 1.30 | 1.44 |
| Had PC-MHI 4–12 months before SMH | 0.99 | 0.87 | 1.12 |
| Most recent PC prior to SMH initiation | | | |
| Had PC on SMH date | 1.03 | 0.97 | 1.08 |
| Had PC 1 day to 3 months before SMH | 1.17 | 1.12 | 1.22 |
| Had PC 4–12 months before SMH | REF | | |
| Diagnoses recorded in the index SMH visit | | | |
| MDD | 1.81 | 1.72 | 1.89 |
| Other depression | 1.66 | 1.61 | 1.72 |
| PTSD | 1.69 | 1.63 | 1.76 |
| Other anxiety disorder | 1.34 | 1.28 | 1.40 |
| Alcohol abuse or dependence | 1.29 | 1.23 | 1.36 |
| Substance abuse or dependence | 1.41 | 1.32 | 1.50 |
| Bipolar disorder | 1.58 | 1.46 | 1.71 |
| Schizophrenia | 1.30 | 1.18 | 1.43 |
| Axis 2 diagnosis (personality disorders) | 0.87 | 0.74 | 1.01 |
| Other mental health diagnosis | 1.24 | 1.19 | 1.29 |
| Procedures recorded in the index SMH visit | | | |
| Psychiatric diagnostic interview | 1.22 | 1.14 | 1.29 |
| Individual therapy | 0.98 | 0.92 | 1.05 |
| Group therapy | 1.80 | 1.64 | 1.98 |
| Family therapy | 1.46 | 1.25 | 1.72 |
| Psychological testing | 0.47 | 0.43 | 0.50 |
| Pharmacological management | 0.72 | 0.69 | 0.75 |
| Alcohol or drug services | 1.60 | 1.46 | 1.76 |
| Other services | 1.18 | 1.07 | 1.29 |

*PC-MIH* primary care-mental health integration, *SMH* specialty mental health, *OR* odds ratio, *LCL* lower confidence limit, *UCL* upper confidence limit, *REF* reference group

services, there has been substantial progress in the implementation of VHA PC-MHI services. This analysis documents substantial increases in the volume of PC-MHI service encounters provided in the VHA. As a result of this increased capacity, more than 1.3 million VHA patients received PC-MHI services in the 3.5 year observation period.

Zeiss and Karlin, (2008) indicated that the VHA intended to implement two approaches to integrating mental health into primary care: co-located collaborative care and care management. VHA now mandates that these two functions be in operation as part of blended PC-MHI services at medical centers and large outpatient clinics in order to ensure provision of high quality, seamless mental health care for patients treated in primary care settings (Department of Veterans Affairs, 2008). The majority of all VA medical center campuses have services that provide either CCC or a blend of CCC and care management. As of the autumn of 2010, nearly half of all medical center campuses reported using the mandated blended approach. There has been substantial progress toward the VHA's PC-MHI objectives and national implementation is ongoing. Implementing large and complex organizational changes can be challenging at the facility level (Graham & Tetroe, 2009). In order to respond to facility needs for assistance with the process of creating blended models of care, VHA policy makers have realigned resources to provide greater assistance to the field. While administrative measurement and feedback continue, additional attention is now being given to increasing technical assistance. This assistance includes working with regional mental health leaders to identify implementation gaps and develop strategic plans to work towards a blended model. A self-assessment tool that spells out the functions of blended PC-MHI components has also been developed in order to provide more details about the expectations for these services. Finally, training activities in the past year have moved beyond the basic components and emphasized how both CM and CCC components can be successfully blended to maximize the quality of PC-MHI care. Follow-up consultation after training is also now available to facilities to assist with the implementation process.

Prior work from a number of sources has demonstrated that PC-MHI encounters are associated with increased likelihood of attending a *first* SMH appointment (Bartels et al., 2004; Oslin, Grantham et al., 2006; Zanjani et al., 2008). The current results indicate that receipt of a PC-MHI encounter is associated with an increased likelihood that a Veteran will receive a *second* SMH encounter, when the PC-MHI encounter occurred in the 3 months before the index SMH visit. Prior studies demonstrating increased engagement in SMH care were controlled, randomized experiments (Bartels et al., 2004; Unützer et al., 2002; Zanjani etal., 2008). The present study differs in that increased engagement was demonstrated in a large administrative database. This outcome suggests that real-life, large scale implementation of this type of programming can demonstrate an important benefit outside of the confines of tightly controlled experiments.

## Limitations

The current study provides a snapshot of patterns of treatment engagement and does not allow for a determination of which factors lead to engagement in SMH care. It is possible that PC-MHI providers are improving the accuracy of referrals, and that those patients who are referred to SMH have greater need or willingness to receive further SMH treatment. Pfeiffer et al., (2011) did not identify significant differences in primary care referrals to SMH, but their study was limited to an examination based on facility PC-MHI implementation status. In contrast, the current study compares patient-level differences with and without PC-MHI encounters. Interacting with PC-MHI providers may help to address barriers to care by changing Veterans' expectations or by altering the stigma associated with MH care. For example, having met with and had a positive experience with a PC-MHI provider, Veterans may be more likely to engage in a therapeutic relationship with a MH provider in a specialty clinic. Also, the therapeutic nature of the Veterans' interactions with PC-MHI providers may better prepare them to engage in mental health care. For example, motivational interviewing is emphasized in training events, widely promoted as an important tool for PC-MHI (Anstiss, 2009; Rollnick, Miller, & Butler, 2007; Zanjani et al., 2008), and has a strong evidence-base as a method to help patients engage in treatment (Rollnick & Miller, 2002). The delineation of these factors should be addressed in future studies.

The definition of "engagement" employed in this study was limited to whether the patient attended a second specialty mental health clinic appointment. It could be argued that in order to understand engagement, it is important to measure factors such as retention in treatment over time (cf., Simpson & Joe, 2004) or whether medication was taken until an effect was achieved (Katon et al., 1995). As with the determination of process factors, more extensive measurement of engagement is beyond the scope of this project.

This study analyzed national administrative and survey data in the VA health system. The VHA is the largest integrated health system in the US and its experience with implementation of PC-MHI services may not generalize to other health care systems in the US. Further, we note that the VHA patient population is older, more likely to be male, and with greater morbidity than the general US

population. Also, facilities varied in their initial utilization of the administrative clinic stop code used to identify PC-MHI services as the study encompasses the years when the vast majority of VA PC-MHI programs began active operations.

An additional limitation is that the national survey data are subject to demand characteristic bias. Respondents may have been motivated by VHA mandates to report positively regarding program implementation. Further, limited familiarity with the program terms may have increased potential response error. Even in settings where these services are offered, the local name of the program may be different than that described in the survey which may have resulted in inaccurate data being obtained from some facilities.

Finally, the VA has many care settings. In addition to its medical centers, VA provides health care at over 800 community based outpatient clinics. Although our assessment of PC-MHI volume encompasses all settings, the survey analyses reported here were limited to VA medical center sites.

## Conclusions

It is important to better understand the clinical structures and processes that result in improved engagement in specialty mental health after PC-MHI service. It is only by delineating these factors that we will be able to design truly efficient programs that can overcome the barriers and stigma associated with specialty mental health care and thus provide essential services to those who are most in need.

Mental health care management has a strong evidence base (Butler et al., 2008) but has received relatively little attention from psychologists in practice. Key aspects of care management include measurement-based care where brief assessment measures are completed at each session, algorithm-based care, the use of registries to support population-based care, and regular periodic review of cases. Supervision of care management has been demonstrated to be a key component in ensuring quality and yielding higher effect size (Gilbody, Bower, Fletcher, Richards, & Sutton, 2006).

Clinically, the role of psychologists in PC-MHI programs has been primarily in CCC clinical positions. However, psychologists have also been heavily involved in the research work that lead to CM implementation, and in leadership positions related to these programs. A growing recognition of the importance of measure-based care practices for mental health providers (Pincus, Spaeth-Rublee, & Watkins, 2011) will also yield opportunity for psychologists to provide guidance about how brief, repeatable measures and patient registry tools developed for CM protocols can be further incorporated into the work of co-located collaborative mental health professionals. These strategies will enable mental health providers in primary care to track individual patient progress and assess the mental health of their patient population as a whole.

Of the minority of educational programs that have trained psychologists to work in primary care settings, health psychology programs are most likely to take on these training activities. More preparation is needed, however, to provide the highest quality care possible. For example, one area that has had little attention in academic programs is the application of CM principles to psychological services provided in primary care. Rather, psychologists that use care management in their own practice or who supervise care managers on their team learn these skills while on the job. The increased likelihood of engagement in SMH following a PC-MHI encounter with a psychologist demonstrated by this study's results suggests that psychologists can and have successfully applied their knowledge and skills to this new role, but more attention is needed to fully prepare and capitalize on the role of psychologists in primary care settings.

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