

# Healthcare Utilization and Symptom Variation Among Veterans Using Behavioral Telehealth Center Services

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## Abstract

*Substance use and mental health problems are often underdiagnosed and undertreated in primary care. Veterans affairs facilities are using the Behavioral Telehealth Center (BTC) to provide evidence-based assessments for primary care patients via telephone. Whether participation in BTC services is associated with (1) increases in healthcare utilization and (2) decreases in symptoms based on behavioral health screening instruments, post-BTC services compared with pre-BTC services were investigated. Retrospective data were extracted for 1,820 patients who were referred to the BTC. Differences in utilization rates and symptom scores pre- and post-BTC*

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*services were tested using repeated measures analysis of covariance while controlling for relevant sociodemographic variables. Participants (1) utilized significantly more substance use and mental health treatment services and (2) had significantly lower alcohol and depression screening scores post-BTC services compared with pre-BTC services. This initial evaluation provides support that BTC services are associated with increased healthcare utilization and decreased alcohol and depressive symptoms.*

## **Introduction**

Behavioral health problems are very common among primary care patients and place a large burden upon the primary care system.<sup>1</sup> One national survey of behavioral health conditions in primary care practices revealed that over 40% of survey respondents met criteria for a behavioral health disorder.<sup>2</sup> Primary care patients are often not diagnosed or referred for treatment for alcohol misuse, depression, or posttraumatic stress disorder (PTSD). Even when an intervention is initiated in primary care, few patients receive an adequate course of treatment.<sup>3</sup> Untreated or undertreated alcohol misuse, depression, and PTSD continue to be major public health concerns that lead to significant disability and societal burden in lost days of employment, increased utilization of medical services, and increased mortality.<sup>4-6</sup> Despite advances in the treatment of these disorders, there remains a gap between the efficacy of treatments demonstrated in randomized clinical trials and outcomes in primary care clinics. For example, when primary care patients with depression are identified, only a quarter to a third achieve full resolution of their symptoms, less than the usual placebo response rate observed in typical clinical trials conducted in behavioral health care settings.<sup>7,8</sup>

Given these gaps in care, the Veterans Health Administration (VHA) has implemented several initiatives to make primary care a platform for prevention and early intervention strategies for behavioral health problems. Primary care providers in the VHA are required to include behavioral health screening as part of routine clinical practice. However, screening and identification, while necessary, are not sufficient in providing quality care for behavioral health problems. The Behavioral Telehealth Center (BTC) provides the next step in this process by offering comprehensive behavioral health assessments to assist in treatment planning and referral management. The BTC enables ongoing interaction/integration between behavioral health services and primary care teams operating in the Patient-Centered Medical Home, or as it is referred to in the VHA, the Patient-Aligned Care Team.

The BTC uses the Behavioral Health Lab (BHL) software which provides the structure for a clinical service designed to help manage the behavioral health needs of patients seen in primary care.<sup>9</sup> BHL software is used at more than 30 VHA facilities across the USA. After the development and validation at the Philadelphia VHA,<sup>9</sup> the BTC started in Upstate New York the 2007 with the goal of serving primary care clinics throughout the Veterans Integrated Service Network 2 (VISN 2). VISN 2 includes 6 medical centers and 30 community-based outpatient clinics. Primary care providers refer patients who need further behavioral health assessment to the BTC. The most common reason for referral is that a patient has screened positive on an alcohol misuse, depression, or PTSD screening instrument that each veteran enrolled in the VHA receives annually. Referrals for alcohol misuse are facilitated by a case-finding system that automatically refers veterans from certain VHA facilities who screen positive for alcohol use. A trained behavioral health technician contacts the referred patient by telephone and delivers a 30 minutes structured behavioral health interview. Regardless of the initial reason for referral (i.e., alcohol use and depression), all veterans receive the same initial assessment by phone. Following the interview, a summary of patient's mental health and substance abuse symptoms as well as their degree of physical, social, and occupational impairment is placed in the electronic medical record for the primary care provider to review. This report includes evidence-based recommendations for

treatment interventions, (e.g., medications and brief counseling) referrals, (e.g., specialty mental health or substance use treatment) and is meant to guide the primary care provider in treatment planning. Following the initial BTC assessment, some veterans receive follow-up services from the BTC, such as depression monitoring.

As the first evaluation of the BTC services, this article describes the sociodemographic, military, and clinical characteristics of the first 1,820 primary care patients who were evaluated by the BTC. In addition, the relationship of BTC services with two important patient outcomes: healthcare utilization and symptoms on behavioral health screening instruments in primary care was investigated. For the purposes of this article, substance use diagnoses and services are defined as those related to alcohol or substance use, mental health diagnoses and services are defined as those related to nonsubstance, mental health problems including depression, PTSD and anxiety, and behavioral health diagnoses and services include both substance and mental health categories; hence, the BTC assesses for both substance use and mental health concerns. It was hypothesized that for participants with alcohol or mental health problems, (1) specialty substance use/mental healthcare utilization will significantly increase post-BTC services compared with pre-BTC services and (2) symptoms on behavioral health screening instruments will be significantly lower post-BTC services compared with pre-BTC services.

## Method

This study utilized retrospective patient data from two VISN 2 clinical databases. BTC clinical data were electronically extracted for the period from 01 September 2007 to 31 March 2010 and clinical data from the VHA Computerized Patient Record System (CPRS) for the period from 01 September 2006 to 31 March 2010. Three types of descriptive information were collected: (1) CPRS data pre-BTC services, (2) BTC services data, and (3) CPRS data post-BTC services. All patients had at least 1 year of data in the pre-BTC period and 1 year of data in the post-BTC period. The project was approved by the Syracuse Veterans Affairs Medical Center Institutional Review Board.

*Pre-BTC services* data from CPRS included demographics (e.g., sex, race, ethnicity, age, and marital status), military (e.g., era of military service and VHA service connected disability status), reason for BTC referral (from the BTC consult), and behavioral health care utilization (e.g., type of visits defined by VHA stop codes and number of visits), and scores on three standardized behavioral health screenings, the *Alcohol Use Disorders Identification Test-Alcohol Consumption Questions* (AUDIT-C),<sup>10</sup> the *Patient Health Questionnaire-Depression Module 2-Item* (PHQ-2),<sup>11</sup> and the *Primary Care PTSD Screen* (PC-PTSD).<sup>12</sup> The AUDIT-C is a three-item instrument that assesses how often and how much a respondent drank alcohol over the past year. Among primary care patients, the AUDIT-C has been found to accurately detect heavy drinking and correspond to diagnoses of alcohol abuse and dependence. Scores range from 0 to 12 with scores at  $\geq 4$  for men and  $\geq 3$  for woman considered to be positive screens, as these cutoffs correspond to people who are at risk for alcohol problems.<sup>10</sup> The PHQ-2 is used to assess the frequency of depressed mood and anhedonia over the past 2 weeks. Among primary care patients, increased scores correlate with decreased functional status and symptom-related difficulty.<sup>11</sup> Scores range from 0 to 6, with a score of  $\geq 3$  considered a positive screen. The PC-PTSD is a four-item measure which demonstrates good validity for use with primary care patients.<sup>12</sup> Each item assesses for the presence of one of the four factors found to be specific to PTSD (i.e., re-experiencing, avoidance, hyperarousal, and numbing) within the last month. Scores range from 0 to 4 with a score of  $\geq 3$  considered a positive screen.

*BTC data* consisted of results from the BTC Core assessment.<sup>9</sup> The Core includes several empirically validated measures and symptom-specific questions used to assess a wide range of current psychiatric disorders and symptoms. Patients were asked to report information on alcohol consumption including the number of standard drinks consumed in the last 7 days and the number of binge drinking episodes (i.e., five or more drinks in a single day for men and four or more drinks

in a single day for women and individual older than 64) in the last 3 months. "At-risk drinkers" were defined as drinking 14 or more drinks/week for men, 7 or more drinks/week for woman, or binge drinking.<sup>17</sup> An illicit drug use screen probed for use of illicit drugs in the last year. The *Patient Health Questionnaire-9* (PHQ-9) was used to provide a provisional depression diagnoses, with scores of  $\geq 10$  signifying "moderate" depression.<sup>13</sup> The *PTSD Checklist* was used to assess PTSD symptoms.<sup>14</sup> Patients were given a provisional diagnosis with a score of  $\geq 33$ , the optimal diagnostic cutoff for a VHA primary care population.<sup>15</sup> The *MINI International Neuropsychiatric Interview* (MINI) was used to assess for symptoms of psychotic or manic episodes as well as to assign provisional diagnoses for panic disorder, generalized anxiety disorder, and alcohol use disorders.<sup>16</sup> The five-item *Paykel Suicide Scale* was used to assess suicidal ideation, desire, and attempts.<sup>18</sup> General physical and behavioral health functioning was measured using the *Short Form-12 Health Survey* (SF-12).<sup>19</sup>

*Post-BTC services* data included behavioral health care utilization (e.g., type and frequency of visits) and scores on the three standardized behavioral health screenings: AUDIT-C, PHQ-2, and PC-PTSD. These data were obtained from CPRS and were not part of the BTC record.

Descriptive statistics including means, standard deviations, and frequencies were calculated to describe the sample. To test hypothesis, one average number of visits per year for specialty substance use and mental health was computed for the periods pre- and post-BTC services. Repeated measures analyses of covariance (ANCOVA) tests were used to test whether the average yearly utilization pre- and post-BTC services were significantly different. We included socio-demographic covariates that have been previously found to affect healthcare utilization.<sup>20,21</sup> Covariates consisted of age, gender, race (white vs. non white) marital status, financial status, and if veterans were VHA service-connected. Service-connection makes healthcare services related to a military injury free, therefore it may affect healthcare utilization. For hypothesis, two repeated measures ANCOVAs were used to test whether average behavioral health screening symptoms pre- and post-BTC services were significantly different. The same covariates were included in tests for hypothesis two as hypothesis one. Sample sizes vary for each outcome assessed because we only expected healthcare utilization and symptoms to change among subgroups of participants that had specific substance use/mental health problems. For example, only the 633 patients that had a positive AUDIT-C pre-BTC services and had a follow-up screen post-BTC services were included in the analysis investigating if alcohol use symptom decreased post-BTC services. Sample sizes are detailed the results section. All analyses were conducted with IBM SPSS version 19.

## Results

The sample consisted of 1,820 primary care patients who were referred to the BTC for further behavioral health evaluation and then completed the initial BTC assessment. This sample represents 58% of the 3,132 primary care patients referred to BTC services in the time frame of study, indicating that 42% of referred patients declined or otherwise never engaged in BTC services. Veterans can actively decline participation in the assessment when a BTC technician contacts them by phone and passively decline services by not answering or returning any of the approximately five call attempts made by BTC staff. Table 1 displays the demographic, military and clinical characteristics of the sample. Participants were predominately male, on average were 64 years of age, and were well distributed across all eras of military service (e.g., Vietnam Era, Gulf Wars Era). Over half of the participants were married, most (895) endorsed the statement, "I have enough money to get along", and about one-third were VHA service-connected for a military-related disability.

Due to the case finding system described earlier, the primary reason for referral to the BTC was alcohol misuse/ positive AUDIT-C screen (88%). Further evaluation for depression (10%) and PTSD (1%) were the next most common referral reasons. Within the data collection period, 98% of

**Table 1**Patient demographic, military, and clinical characteristics (*N*=1,820)

	<i>n</i> (%)	<b>M (SD)</b>
Age	–	64.0 (16.6)
Male	1,752 (96.3)	–
Race		
White	1,665 (91.5)	–
Black/African American	108 (5.9)	–
Native American/Alaskan	13 (0.7)	–
Asian/Pacific Islander	3 (0.2)	–
Refused	6 (0.3)	–
Other or mixed	25 (1.4)	–
Hispanic	37 (2)	
Married	1,024 (56.3)	–
Finances		
"Enough money to get along"	1,621 (89.1)	
"Can't make ends meet"	199 (10.9)	
Service connected	599 (32.9)	–
Era of service ( <i>n</i> =1,812)		
World War II	270 (14.8)	–
Korean	430 (23.5)	–
Vietnam	833 (45.7)	–
Gulf Wars (Desert Storm, OEF/OIF)	279 (15.3)	–
Reason for BTC referral		
AUDIT-C/alcohol misuse	1,606 (88)	–
Depression	182 (10)	–
PTSD	14 (1)	–
Multiple conditions/other	17 (1)	–
Behavioral health screening in primary care		
Completed an AUDIT-C	1,785 (98.1)	–
Positive AUDIT-C	1,586 (87.1)	–
Completed a PHQ-2	1,732 (95.2)	–
Positive PHQ-2	277 (15.2)	–
Completed a PC-PTSD screen	1,085 (59.6)	–
Positive PC-PTSD screen	114 (6.3)	–
BTC substance use problems		
At-risk drinker	486 (26.7)	–
Alcohol abuse	127 (7.0)	127 (7.0)
Alcohol dependence	176 (9.7)	–
Illicit drug use in past year	12 (0.7)	–
BTC mental health disorders		
Depression	332 (18.2)	–
PTSD	265 (14.6)	–
Generalized anxiety disorder	197 (10.8)	–
Panic disorder	27 (1.5)	–
Psychosis	109 (6.0)	–
Mania	53 (2.9)	–
BTC suicidality (last year)		

**Table 1**  
(continued)

	<i>n</i> (%)	<i>M</i> ( <i>SD</i> )
Life was not worth living	228 (12.5)	–
Wished you were dead	169 (9.3)	–
Thought about taking own life	119 (6.5)	–
Seriously considered or made plans	62 (3.4)	–
Made attempt on life	5 (0.3)	–
BTC quality of life		
SF-12 Mental Composite Score	–	51.9 (11.7)
SF-12 Physical Composite Score	–	45.6 (11.6)

veterans were screened for alcohol misuse with 87% screening positive; 95% were screened for depression with 15% screening positive; and 60% were screened for PTSD with 6% screening positive. Therefore, the sample primarily consisted of primary care veterans who screened positive for alcohol misuse.

Results from the BTC initial assessment show that more than one quarter of the sample were categorized as "at-risk drinkers" (see Table 1). An additional 7% met diagnostic criteria for alcohol abuse and 10% for alcohol dependence. Patients consumed an average of 11 (SD=15) standard alcoholic drinks/week and reported an average of 9 (SD=21) binge drinking episodes in the last 3 months. Only 12 veterans reported using illicit drugs more than ten times in the past year.

Mental health disorders were common in the sample (see Table 1). Depression was the most common (18%), followed by PTSD (15%), generalized anxiety disorder (11%), and panic disorder (2%). Six percent of the sample reported current symptoms of psychosis and 3% reported symptoms of mania. Six percent of participants scored in the low- to moderate-risk range on suicidality and 7% scored in the high- to very high-risk range. Participants reported lower physical (mean=46) and similar mental health (mean=52) quality of life compared with normative data for well individuals (physical mean=54, mental mean=52).<sup>19</sup>

Whether specialty substance use/mental healthcare utilization increased post-BTC services compared with pre-BTC services was investigated among patients who were assessed as having alcohol or mental health problems by the BTC (see Table 2). As described previously, sociodemographic variables were included as covariates to assess their impact on healthcare utilization. Participants with alcohol abuse or dependence ( $n=303$ ) utilized significantly more specialty substance use treatment post-BTC services (2.52 sessions/year) compared with pre-BTC services (1.68 sessions/year) ( $F(1, 4.63)=-2.15, p=0.03$ ). This is an increase of 4.2 sessions of substance abuse treatment over the five year time period. No covariates significantly interacted with the main outcome of time to predict substance use services utilization. Participants ( $n=524$ ) with one or more of the mental health problems listed in Table 1 utilized significantly more specialty mental health treatment post-BTC services. Utilization of specialty mental health care rose from a mean of 1.8 sessions/year pre-BTC to 3.48 sessions/year post-BTC. This difference was significant ( $F(1, 261)=6.04, p\leq 0.02$ ) and translates to an increase of 8.4 sessions over 5 years. Race significantly interacted with time in predicting change in mental healthcare utilization ( $F(1, 261)=1.45, p=0.02$ ), with white veterans using more mental health services post-BTC and non-white veterans using less mental health treatment post-BTC.



**Table 2**

Average monthly healthcare utilization pre- and post-BTC services compared with repeated measures ANCOVAs

	<b>M (SD)</b>	<b>Effect</b>	<b>F(df)</b>	<b>p value</b>
Visits to substance use Specialty care pre-BTC <sup>a</sup>	1.68 (6.24)	Time	4.63 (1,301)	0.03
Visits to substance use Specialty care post-BTC <sup>a</sup>	2.52 (9.96)			
Visits to mental health Specialty care pre-BTC <sup>b</sup>	1.80 (4.68)	Time	6.04 (1,261)	0.02
Visits to mental health Specialty care post-BTC <sup>b</sup>	3.48 (6.96)	Time×race	1.45 (1,261)	0.02

<sup>a</sup>Sample composed of 303 patients who met criteria for an alcohol use disorder<sup>b</sup>Sample composed of 524 patients who were diagnosed with depression, PTSD, GAD, panic disorder, mania, or psychosis

Scores on the behavioral health screening instruments that were administered in primary care pre-BTC services were compared with scores on instruments post-BTC services while covarying for sociodemographic factors (see Table 3). Analyses were restricted to patients who had a positive screen pre-BTC services and at least one follow-up screen (positive or negative) post-BTC services. The 633 participants who screened positive on the AUDIT-C pre-BTC services (M=5.0, SD=1.8) reported drinking significantly less post-BTC services (M=3.2, SD=2.4) ( $F(1, 206)=8.22, p=0.01$ ). This represents a potentially clinically significant change, as the mean AUDIT-C score would no longer be considered “positive” following BTC services. The 88 participants who screened positive on the PHQ-2 pre-BTC services and who has a post-BTC screening result reported significantly fewer depressive symptoms post-BTC services (pre-BTC mean=4.15, SD=1.1, post-BTC mean=1.66, SD=2.2) ( $F(1, 36)=6.77, p=0.01$ ). This decrease in symptoms indicates that the average participant

**Table 3**

Behavioral health screening scores in primary care: pre- and post-BTC services score compared with repeated measures ANCOVAs

	<b>M (SD)</b>	<b>Effect</b>	<b>F(df)</b>	<b>p value</b>
AUDIT-C score pre-BTC <sup>a</sup>	5.0 (1.8)			
AUDIT-C score post-BTC <sup>a</sup>	3.2 (2.4)	Time	8.22 (1,206)	0.01
PHQ-2 score pre-BTC <sup>b</sup>	4.15 (1.1)			
PHQ-2 score post-BTC <sup>b</sup>	1.66 (2.2)	Time	6.77 (1,36)	0.01
PC-PTSD score pre-BTC <sup>c</sup>	3.3 (.52)			
PC-PTSD score post-BTC <sup>c</sup>	3.3 (.82)	Time	0.13 (1,14)	n.s.

<sup>a</sup>Sample comprised of 633 patients that had a positive AUDIT-C pre-BTC services and had a follow-up screen<sup>b</sup>Sample comprised of 88 patients who had screened positive on the PHQ-2 pre-BTC services and had a follow-up screen<sup>c</sup>Sample was restricted to 15 participants that screened positive pre-BTC services and had a follow-up assessment

was no longer in the range of scores that indicates a positive screen for depression. Of the participants who screened positive on the PC-PTSD pre-BTC, only 15 had a post-BTC PC-PTSD screening result. Mean PC-PTSD scores pre- and post-BTC services were not significantly different. No covariates significantly interacted with time in predicting change from pre- to post-BTC services on any behavioral health screening instrument.

## Discussion

Results describe the first 1,820 primary care patients to be assessed by the BTC. Most were referred for alcohol use, but depression, PTSD, and other mental health problems were also common. For patients with substance use diagnoses, participation in BTC services is associated with increased utilization of substance use services post-BTC services compared with pre-BTC services. White veterans with mental health disorders also increased their use of mental health services. BTC services are also associated with decreases in alcohol consumption and depressive symptoms as measured by AUDIT-C and PHQ-2. These findings provide preliminary support for the usefulness of BTC services for primary care patients with substance use or mental health concerns.

One of the major goals of the BTC is to determine what behavioral health services a patient needs and then to communicate this to the patient's primary care provider so appropriate interventions can be delivered and referrals can be made. The current findings demonstrate that patients who are in need of behavioral health services, as evidenced by the results of their BTC assessment, are engaging in more healthcare services post-BTC services compared with pre-BTC services. While significant increases in behavioral healthcare utilization were found, the increase in number of visits per year is small, ranging from 0.84 to 1.7 visits depending on the type of care. These results may indicate that the BTC fosters initiation of behavioral healthcare but that noncompliance and drop-outs remain a serious problem following initiation. Nonetheless, the importance of even small increases in behavioral healthcare use in terms of decreased primary care provider burden and increased engagement in treatment for patients should not be overlooked. This is especially true among patients with severe symptoms. Approximately 13% of the sample reported suicidal ideation in the last year and 6.5% thought about taking their own life. Increased engagement with behavioral health services is clearly important for this population.

One covariate was identified as predicting healthcare utilization. Only white veterans increased their use of specialty mental health services post-BTC services. These results must be interpreted cautiously and are need of replication with a more diverse sample given that only 7.5% of the sample ( $n=155$ ) reported their race as something other than white. Nonetheless, previous research does support that non-white individuals may experience more barriers to healthcare.<sup>22,23</sup>

Support for the usefulness of BTC services is also evidenced by decreased alcohol consumption and depressive symptoms as measured by behavioral health screening instruments. The BTC only assesses for symptoms and does not provide treatment services; however, it does make evidence-based recommendations to primary care providers on what types of services would likely benefit patients. These recommendations may have allowed primary care providers to deliver treatment services and make referrals that resulted in symptom decreases. The symptom decreases appear to be clinically significant as the average score on the alcohol use and depression screening instruments decreased from the positive to the negative range, signifying that patients were no longer at risk for alcohol use and depression problems. The finding that no sociodemographic factors covaried with changes in behavioral health screening scores indicates that all subgroups appear to have benefited equally from BTC services in terms of reductions in drinking and depressive symptom.

Results highlight the importance of administering behavioral health screening instruments in primary care. Primary care-based screening is a vital initial step in engaging veterans in the



behavioral healthcare services they need. Nonetheless, there appears to some under-administration of the screening instruments. First, 40% of the sample was not screened for PTSD compared with 5 and 13% who went unscreened for depression and alcohol misuse, respectively. It is unknown why this sample was screened for PTSD less often. It is possible that patients who screen positive for alcohol misuse are less likely to be screened for PTSD. Regardless, the VHA Clinical Practice Guidelines recommend that all primary care patients be screened for PTSD.<sup>24</sup> Despite the multiple demands on providers within primary care, this remains critically important guidance as VHA primary care patients report elevated rates of PTSD (12%) compared with the general population (8%).<sup>25,26</sup> In addition, rates of PTSD in individuals with alcohol use disorders are elevated: one study found that 39% of VHA primary care patients who screen positive for an alcohol use disorder will report symptoms consistent with a PTSD diagnosis.<sup>27</sup> Of further concern was the finding that some subgroups of patients also had low rates of follow-up screens. Only 5% of patients who received a PTSD screen received a follow-up screen within the next 2 years. Patients need to be present in primary care in order to be screened; therefore, the low follow-up screening rate may be the result of poor patient compliance with annual primary care visits and behavioral health screening being a lower provider priority when treating complex, multi-problem patients.

Limitations of this study must be considered when interpreting results. First, there was not a non-BTC-assessed control group. Therefore the observed changes in healthcare utilization, alcohol consumption and depressive symptoms may have been due to the passage of time, and not a result of receiving BTC services. Future research should compare a BTC-assessed sample to a non-BTC-assessed sample. This research could lend further support to the preliminary conclusion that the BTC is a helpful service for primary care veterans. Second, veterans with subthreshold symptoms of depression and PTSD were not included in the analyses because specialty behavioral healthcare utilization was not expected to increase for this group. Patients with subthreshold symptoms are often treated within primary care. Future research that focuses on utilization of primary care-based medical and behavioral health services should evaluate utilization among this group, since subdiagnostic depression and PTSD are known to be related to poorer health and functional impairment.<sup>4,28</sup> Third, results from the behavioral health screening instruments administered in primary care are not a preferred measurement of symptom fluctuation. Screening instruments assess a limited number of symptoms and therefore may be less sensitive to change. Re-administering the BTC Core assessment to patients 1 year after their initial evaluation would provide more specific information. However, since re-administering the initial evaluation is not standard clinical practice, these data were not available for analysis.

This first evaluation of the BTC focused on changes in healthcare utilization, alcohol consumption, and mental health symptoms. Future research on the BTC care management program would be enhanced by the inclusion of variables examining patient and provider satisfaction, economic analyses, and the usefulness of other BTC services, such as referral management and depression monitoring. A more comprehensive investigation of whether socioeconomic variables, such as education level and economic status, serve as covariates to the healthcare utilization and symptoms change outcomes may shed light on how social determinants impact health outcomes. Also, a systematic examination of what interventions and referrals veterans receive subsequent to BTC services would shed light on what factors may be leading to symptom reductions. Lastly, given our current promising findings, an investigation of factors related to the patient refusal of BTC services is indicated. Forty-two percent of referred patients never participated in the initial telephone-based behavioral health assessment. If BTC is to be judged as a useful service, it will be important to find ways to engage a higher percentage of referred patients.

## Implications for Behavioral Health

The current results provide initial evidence that the BTC is a helpful program for primary care providers and patients. BTC use appears to be associated with increased healthcare utilization, decreased alcohol consumption, and decreased depressive symptoms for VHA primary care patients. However, there is evidence that BTC services may be most helpful for veterans who are white. The results have important implications for the behavioral health status of primary care patients, given that mental health and substance use problems are often underdiagnosed and undertreated in the primary care setting. BTC services may help bridge the gap between behavioral health screening in primary care and initiation of behavioral health treatment.

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