Primary Care Behavioral Health Consultation Reduces Depression Levels Among Mood-Disordered Patients

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ABSTRACT

The purpose of this study was to examine the effects of behavioral health consultative services on levels of depressive symptoms in patients diagnosed with a mood disorder. Two-hundred fifty-one patients with a form of mood disorder completed the PHQ-9 screening tool for depression both before and after a treatment period lasting an average of three months, during which patients received behavioral health consultation services. Results showed that 49.8% of patients participating in this integrated behavioral health care program experienced improvements of at least 50% in PHQ-9 scores from pre- to post-test. Improvements in PHQ-9 scores of at least a five points from pre-to post-test were experienced by 80.5% of participants. At least some improvement in PHQ-9 scores from pre- to post-test was observed in 94.8% of patients with a mood disorder. Improvement in PHQ-9 scores was not significantly correlated with the number of behavioral or medical visits made during the intervention period. The degree of improvement in PHQ-9 scores seen in persons receiving psychotropic medication during the program period did not differ significantly from that of persons not receiving psychotropic medication. The number of medical visits decreased significantly during receipt of behavioral health consultation services.

Key words: Integrative Behavioral Health Care; Primary Care; Depression, Behavioral Health Consultation

INTRODUCTION

Primary care is the provision of continuous and coordinated care to patient populations, undifferentiated with respect to gender, age, or disorder. Primary care delivers accessible, integrated, and evidence-based behavioral health care practices by practitioners accountable for addressing a large majority of personal health care needs. This is accomplished by developing sustainable partnerships with patients within the context of families and area communities. To better meet the needs of patients in primary care settings, there is an urgent need for evaluation of current health care delivery systems, particularly in underserved and understudied rural areas (Gazewood, Rollins, & Galazka, 2006).

Integrated care programs are designed to increase the availability of behavioral health services within primary care settings. They combine specialized medication regimes prescribed by the primary care provider and tailored behavioral treatment approaches provided by a behavioral health consultant (BHC) (Robinson & Reiter, 2007). For example, research conducted by Strosahl (1994) indicates that integrated care approaches produce superior clinical outcomes for patients with depression and anxiety.

A number of integrated care models have been developed, ranging in their degree of integration from "minimal collaboration" arrangements, where medical and behavioral health care is provided at administratively separate organizations located in different places, to a "close collaboration in a fully integrated system", in which behavioral health care is provided seamlessly as part of primary care within one co-located facility (Collins, Hewson, Munger, & Wade, 2010). For example, an example of a highly successful of integrated care approach is that of the IMPACT program, as evaluated by Unutzer et al. (2002). This multisite, randomized controlled study demonstrated that incorporation of a behavioral health care intervention within primary care settings resulted in significant improvements in measures of depression, functional impairment, and quality of life in older adults recruited specifically because of a diagnosis of major depression or dysthymic disorder.

In contrast to the care model implemented in the IMPACT program, enrollment of patients in a Primary Care Behavioral Health Consultation (PCBHC) program is not based on diagnosis of a specific and targeted behavioral health condition, such as major depression. Rather, all PCBHC patients within the patient base of the primary care facility receive integrated medical and behavioral health care according to their individual needs. Within this population-based context, primary care organizations have been found to contain high percentages of patients with significant behavioral health needs. For example, Olfson et al. (2000) found that 19% of primary care patients qualified for a diagnosis of major depression, 15% met the criteria for generalized anxiety disorder, and 8% met the criteria for panic disorder, indicating that approximately 40% of patients seen in a primary care setting are in significant need of behavioral health services. Behavioral health consultation in this setting addresses the wide range of behavioral health issues observed in primary care patients, with the goal of helping patients to achieve and maintain functionality.

In a PCBHC model, behavioral, and medical health care needs are coordinated by co-locating a Behavioral Health Consultant (BHC) within a primary care setting. The BHC provides disease management services in which acute and chronic problems – such as depression, obesity, pain, diabetes, cardiovascular problems, and asthma/COPD – can be treated (Hunter, Goodie, Oordt, & Dobmeyer, 2009). Evidenced-based behavioral assessments and interventions are utilized in coordination with medical presentations (i.e., depression and anxiety associated with

medicalconditions). The BHC also uses targeted solutions, such as focused, brief psychotherapies, to address lifestyle stressors. The BHC documents these services by giving detailed feedback to the medical provider who referred the patient. BHCs can assist in reducing medical utilization, co-manage psychotropic medication regimens, and provide triage for patients in need of specialty behavioral health services (Strosahl, 1994). Because the major focus of integrated behavioral health consultation is on helping patients meet their immediate goals of functionality, patients not meeting these goals within a PCBHC context are referred to more specialized behavioral health services.

The behavioral health needs of the primary care patient population cannot be met within a primary care setting by applying traditional behavioral health philosophies, skills and/or interventions (Robinson & Reiter, 2007). In contrast, the pace of integrated behavioral health care is faster, the needs of the patient are more diverse, and the demands associated with a primary care team approach are significantly different from those of a behavioral health specialty approach. Behavioral health providers are trained in behavioral health consultation and health psychology concepts which have proven to be successful for the integration process. These providers develop and lead patient education interventions for patients with chronic health problems while participating in clinic care with members of the primary care team. The BHC utilizes a consultative and comanagement philosophy which involves brief assessment and interventions to assist in improving health outcomes for primary care patients.

Strosahl (1997) notes a distinction between two general approaches to integrative primary care: horizontally and vertically organized programs. Vertical integration entails providing targeted, brief specialized behavioral health services to a well-defined sub-population, i.e., major depression. Vertical integration programs provide high frequency care for high cost patient populations. We would characterize Project IMPACT as an example of a vertical integration model. Horizontal integration, in contrast, involves integrated services which address almost any behavioral health concern that can benefit from a well-structured, general behavioral health service. Horizontal integrative models deliver a large volume of brief, targeted psychosocial services with the goal of improving the overall behavioral health of a broad patient population will improve. We believe that behavioral health consultation represents an example of a horizontal model of integrated health care. The goal of the present study is to extend the limited literature and knowledge base regarding utilization of behavioral health consultative services co-located within a primary care setting.

In the integrative care program evaluated in this study, established primary care patients received co-located medical and brief behavioral health services at Twin City Medical Center (a federally qualified community health center) located in rural Southwest Virginia. Specifically, this study presents data addressing the effectiveness of an integrated primary and behavioral health care program in reducing depressive symptoms in mood-disordered patients. The primary focus of these analyses was on determining the degree to which scores for a self-report depression screening tool – the Patient Health Questionnaire-9 (PHQ-9) (Spitzer, Kroenke, & Williams, 1999) – improved from a pre-test administered before referral to the integrated care program to a post-test obtained three months after referral to the program. Changes in PHQ-9 depression scores were evaluated in reference to goals specified by the Human Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services. These goals are that (a) at least 40% of patients will demonstrate at least a 50% improvement in PHQ-9 scores and (b) at least 50% of patients will display at least a 5 point improvement in PHQ-9

scores. It was predicted that the integrated behavioral health consultation program assessed in this study would meet or exceed these benchmarks established by HRSA. A second set of analyses compared the frequency of medical visitation before the beginning of the PCBHC intervention to that observed during the intervention. It was predicted that the frequency of medical visitation would decrease significantly during the PCBHC intervention.

METHODS
Participants

Of 300 participants providing pre- and post-intervention Patient Health Questionnaire–9 (PHQ-9) scores, 251 met the criteria for the presence of a mood disorder. Participants providing data for the study consisted of 300 patients referred to behavioral health consultation between January and March of 2009. Diagnostic categories categorized as mood disordered were Depressive Disorder NOS, Adjustment Disorder, Panic Disorder, Major Depressive Disorder, and Generalized Anxiety Disorder. Preliminary diagnoses of mood disorders were made by the primary care physician during a medical screening examination. PHQ-9 scores were obtained as part of this exam. The diagnosis was confirmed by a behavioral health consultant at the time of initial referral to the integrated care program. The mean age for patients with mood disorder was 41.20 (SD = 14.02). Sixty-three percent ($N = 157$) of participants were female and 37% of participants were male ($N = 94$). Ninety-seven percent of participants were Caucasian, 2% were African-American, and 1% were Hispanic. Fifty-seven percent of the patient sample received psychotropic medication regimens in conjunction with the PCBHC intervention.

Materials

Patient Health Questionnaire-9 (PHQ-9). The PHQ-9 (Spitzer, Kroenke, & Williams, 1999) is a nine item instrument developed for the detection of depressive symptoms. This tool is commonly used within community health centers as a screening tool for mood disorders.

Procedure

This study utilized a single-sample, pre-test/post-test design in which PHQ-9 scores were obtained at the time of initial referral to behavioral health consultation and then a second time approximately three months after referral to the program (Mean number of days = 91.00, $SD = 6.84$). Behavioral health consultation (BHC) interventions utilized four or more 30 minute sessions which took place within the three month period. The first BHC treatment session included an assessment of the patient's problems, an explanation of the rationale of treatment, establishment of a positive problem orientation, and an initiation of problem-solving treatment. The second session established an achievable goal which could be accomplished prior to the next session. Importance was placed on the goals addressing the barriers identified in the first session. The third session utilized multiple solution alternatives identified for implementation. Each solution presented unique advantages and obstacles, and one or more were chosen for implementation. During the fourth session, a specific plan of action was designed for implementing the solution.

After the fourth session, patient contact with a behavioral health consultant was scheduled on as "as needed" basis. The co-location of primary care physicians and behavioral health consultants meant that patients making a medical visit could be referred to behavioral care on the same day. The PCBHC model also promotes easy access to behavioral health consultants for a wide range of patient needs, including brief therapy sessions, co-managing self-monitoring for chronic health conditions such as diabetes, crisis intervention, and assistance with titration of

psychotropic medications. For these reasons, patient contact with BHCs may be frequent, but often brief. These BHC contacts, made with primary care physicians' knowledge and approval, are designed to reduce the need for patient contact with the primary care physicians themselves.
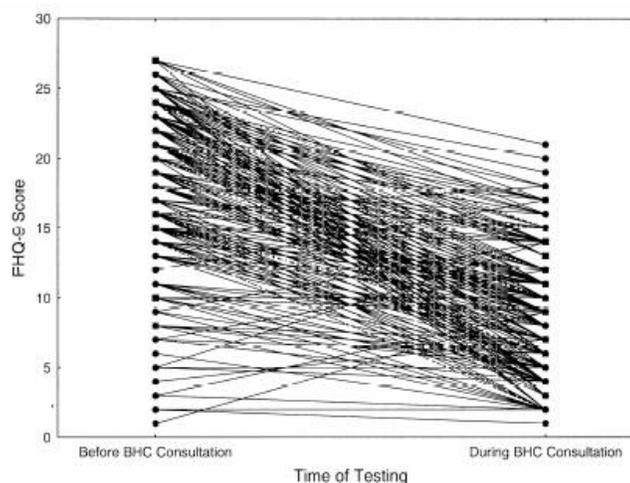
RESULTS

Mean PHQ-9 scores of mood disordered participants before and after integrated behavioral health consultation

A one-way repeated-measures ANOVA was conducted comparing mean PHQ-9 scores obtained before participation in the integrated behavioral health care program to those obtained after participating in the program. The mean PHQ- 9 score obtained after the intervention period (M = 8.79, SD = 4.57) was significantly lower than the mean PHQ-9 score obtained before the beginning of the program (M = 17.82, SD = 5.92), F (1, 250) = 595.274, p < .001, $\eta2$ = .704. This is a very strong and consistent effect, with participation in the behavioral health care program accounting for 70% of the variability in changes of PHQ-9 scores between the two times of testing. Changes in PHQ-9 scores from pre- to post-intervention for mood-disordered patients are displayed in Figure 1.

Percentage of mood-disordered patients who displayed at least a 50% improvement in PHQ-9 scores

Results showed that 49.8% (N = 125) of mood-disordered patients demonstrated improvements of at least 50% in PHQ scores from pre- to post-intervention times of testing. The percentage of participants who met the goal of 50% improvement exceeded the HRSA target of 40% of participants. This pattern did not differ significantly as a function of the gender of participants. Participants experiencing at least a 50% improvement in PHQ-9 scores were significantly younger (M = 39.18 years; SD = 14.43) than participants who did not experience this degree of improvement (M = 43.21; SD = 13.34), F (1, 249) = 5.24, p = .023, $\eta2$ = .021. Although statistically significant, the effect of age only accounted for 2.1% of the variability in whether or not participants experienced at least a 50% improvement in PHQ-9 scores, indicating the presence of a weak effect.

Figure 1. Individual changes in PHQ-9 Scores from before referral to PCBHC to three-months after beginning PCBHC.

Percentage of mood-disordered patients who displayed at least a 5 point improvement in PHQ-9 scores

Results indicated that 80.5% ($N = 202$) of mood-disordered patients experienced at least a 5 point improvement in PHQ-9 scores from pre- to post-intervention. The percentage of participants who met the goal of a 5 point improvement exceeded the HRSA target of 50% of participants. This pattern did not change significantly as a function of either the age or the gender of participants. The mean change in PHQ-9 scores from pre- to post-intervention was a reduction of 9.04 points ($SD = 5.87$).

Percentage of mood-disordered patients who displayed at least some improvement in PHQ-9 scores

Analyses indicated that 94.8% ($N = 238$) of mood-disordered patients experienced at least some improvement in PHQ scores from pre- to post-intervention (post-intervention PHQ-9 scores − pre-intervention PHQ-9 score < 0). This pattern did not change significantly as a function of either the age or gender of participants.

Changes in PHQ-9 scores from pre- to post-intervention were not significantly correlated with the number of behavioral health visits during the intervention period, $r = -.063$, $p = .321$. Likewise, PHQ-9 change scores were also uncorrelated with the number of medical visits made during the intervention period, $r = .037$, $p = .559$. No significant difference in PHQ-9 change scores was observed between mood disordered patients taking ($M = -9.24$, $SD = 5.84$) and not taking ($M = -8.77$, $SD = 5.91$) psychotropic medications during the three month PCBHC evaluation period, $F (1, 249) = .393$, $p = .532$, $\eta2 = .002$.

Frequency of medical visitation before and during integrated behavioral health care

Data from participants with a mood disorder were used to address the question of whether the frequency of medical visitation changed significantly after patients began participation in the integrated behavioral health care program. The frequency of primary care visitation before beginning the behavioral health care program was measured in units of the number of medical visits per month in which participants were enrolled as patients in the clinic. A month was defined as a 28 day period. The frequency of behavioral health visitation during enrollment in the integrated behavioral health care program was also measured in units of the number of behavioral health visits per month.

Figure 2 displays the number of medical visits per month before beginning integrated behavioral health care and during the program. The mean number of medical visits per month before the program was 2.98 ($SD = 1.17$) and the mean number of medical visits during the program was 0.56 ($SD = .21$). The mean number of medical visits per month declined significantly, $F (1, 248) = 1047.06$, $p < .001$, $\eta2 = .81$. Consistent with analyses of PHQ-9 change scores, this is a very strong effect, with participation in the behavioral health care program accounting for 81% of the variability in changes in the frequency of primary care visits. The results indicate that people in the program made primary care visits approximately 1/6th as often as they did before beginning the program. The rate of medical visitation during the study period did not differ significantly between patients taking ($M = .56$ medical visits per month, $SD = .21$) and not taking psychotropic medication ($M = .56$ medical visits per month, $SD = .20$), F (1, 249) = 0.04, $p = .841$, $\eta2 < .001$.

Figure 2. Individual number of medical visits per month
before and during integrated behavioral health care
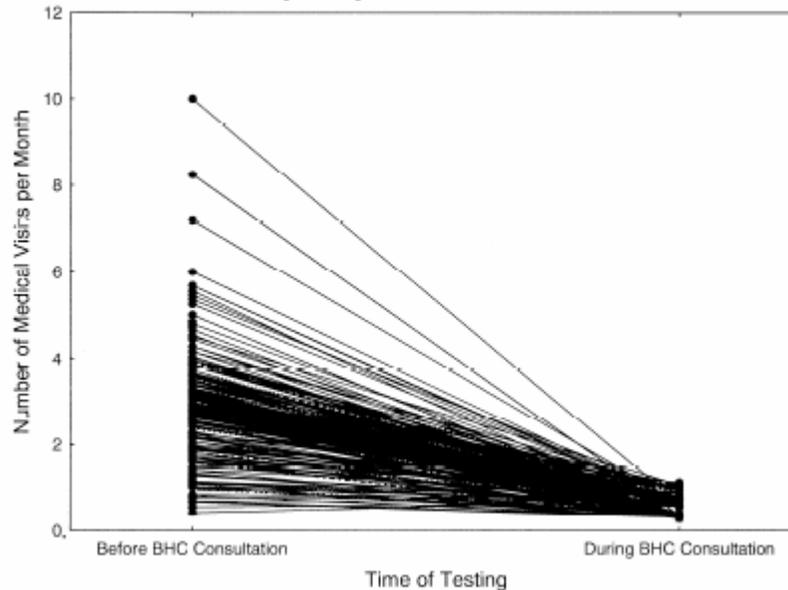
The mean number of behavioral health visits per month during the study period was 2.62 (SD = 1.48). When the number of medical and behavioral health visits during the integrated care period were combined patients accessed integrated health care services a mean of 3.21 times per month (SD = 1.53) – a value that was not significantly different from the mean number of primary care visits before the beginning of the program (M = 2.98, SD = 1.17), F (1, 248) = 3.19, p = .075, η2 = .013. This indicates that participation in integrated behavioral health care did not add significantly to the total number of office visits, medical or behavioral.

DISCUSSION

The results of this study provide evidence for significant improvements in PHQ-9 scores over a three month period in patients with mood disorders. Specifically, the effects of integrated behavioral health consultative care on PHQ-9 scores show that 49.8% (N = 125) of mood-disordered patients experienced improvements of at least 50% in PHQ-9 scores from pre- to post-intervention. This percentage exceeds the HRSA target of 40% of participants. The results also showed that 80.5% (N = 202) experienced at least a 5 point improvement in PHQ-9 scores from pre-to post- test. This percentage exceeds the HRSA target of 50%. Ninety-five percent (N = 238) of mood-disordered patients experienced at least some improvement in PHQ-9 scores from pre- to post-test. The PCBHC program was equally effective in reducing levels of depression in patients who were and were not being treated with a psychotropic medication.

Among patients with a mood disorder the frequency of primary care visitation during the study period was approximately one-sixth that of the rate recorded before the beginning of the program. Moreover, the combined number of behavioral and medical visits per month during the program was not significantly different from the number of medical visits observed before the start of the program. This finding is consistent with the position that co-locating primary care and brief behavioral health services provides a significant direct care medical cost offset through less

frequent provision of expensive medical services and through cost savings associated with a general increase in primary care service efficiency (Strosahl & Sobel, 1996).

One interesting and counterintuitive finding concerns of the lack of a significant relationship between PHQ-9 change scores and the number of behavioral health visits made during participation in the behavioral health consultation program. At first glance, it would make sense for greater numbers of behavioral health sessions to be associated with greater levels of improvement. However, one factor working against the presence of a significant correlation in this situation is the observation that changes in PHQ-9 scores across the intervention period are highly consistent across patients, as evidenced by the largely parallel nature of the lines for individual patients displayed in Figure 1. This may have produced a situation where the range of scores for one of the variables involved in the correlation (i.e., PHQ-9 change scores) has been restricted, thus weakening the observed strength of the relationship. We view this high degree of consistency across patients in improved in PHQ-9 scores as a positive feature of the PCBHC model assessed in this study. Another possible factor is that some patients may require more contacts with behavioral health consultants than others to achieve target levels of improvement in depression, but that the integrated care model provides the flexibility required to meet individual patient needs. We argue that behavioral health consultation, with its brief and highly focused patient visits, is able to provide patients with what they require on a given day to maintain and improve their level of function. In effect, provision of services is standardized according to the care needs of patients, rather than to the scheduling requirements of practitioners.

The primary implications of this study stem from the demonstrated potential of PCBHC programs to produce high quality patient care while utilizing fewer medical resources. Most of the early research on integrative care focused on the association between provision of traditional individual psychotherapy and reduction in medical costs (e.g., Cummings & VandenBos, 1981). More recent studies suggest that a variety of brief behavioral health interventions targeting psychosocial and psychotherapeutic needs may concurrently assist patients in solving life problems and reduce the need for medical services (Robinson & Reiter, 2007). Reductions in depression observed in this study were obtained in the context of a community health center providing services to insured, underinsured, and uninsured patients. Cost efficiencies associated with PCBHC have the potential to make primary care accessible to a larger percentage of persons for whom it would otherwise not be available.

One significant limitation of this study is the lack of a non-integrated services comparison group. It is hoped that future studies utilizing a randomized, controlled design will provide a more powerful test of the PCBHC model of integrated care and help in identifying those subcategories of patients most and least likely to benefit from this model of care. A second limitation of this study is that data were collected from a single community health center. Collection of data at multiple sites and at multiple organizations will lead to increased generalizability of the benefits of behavioral health consultation observed in this study.

Overall, the results of this study provide further evidence that integrated behavioral health care is associated with reductions in both self-reported levels of depression and the rate of high-cost medical visits. This provides additional support for the position that integrated behavioral health consultative care represents an efficacious and cost-effective health care model.

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