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# Telephone Counseling as an Adjunct to Antidepressant Treatment in the Primary Care System *A Pilot Study*

**CONTEXT.** Many clinical and logistical barriers exist in the primary care model for treating adult depression.

**OBJECTIVE.** To examine the feasibility and clinical effects of a telephone counseling and medication monitoring program for adults starting treatment for depression in primary care.

**DESIGN.** Pilot study with a contemporaneous control group.

**SETTING.** Group Health Cooperative, an HMO serving more than 450,000 persons in western Washington.

**PATIENTS.** Twenty-eight adult primary care patients starting antidepressant treatment (telephone counseling group) were compared with 94 patients receiving usual care (control group).

**INTERVENTION.** Telephone counseling participants received written educational materials addressing depression, followed by six weekly counseling and support sessions delivered over the telephone by a master's-level therapist. The intervention used the transtheoretical model of behavioral change and cognitive-behavioral strategies to enhance self-monitoring, self-management, and coping skills.

**DATA SOURCES.** Telephone interviews and computerized pharmacy and visit records.

**OUTCOME MEASURES.** Participation rate and retention, Hopkins symptom checklist depression scores, medication adherence and dose thresholds, and visits made for depression treatment.

**RESULTS.** Ninety-three percent of telephone counseling participants contacted agreed to participate, and 92% completed the intervention. Telephone counseling patients showed significantly lower depressive symptoms than did control group patients at 3-month follow-up (0.89 vs. 1.13) and 6-month follow-up (0.79 vs. 0.95;  $P = 0.03$ ). Telephone counseling patients were twice as likely to adhere to antidepressant medication with adequate dose thresholds (25% vs. 13%) and half as likely to meet criteria for major depression than were control group patients across time (8% vs. 16%), although these differences were not statistically significant. Total outpatient visits made for depression treatment between groups across time did not differ. Overall program cost per patient was estimated at about \$150.

**CONCLUSIONS.** A telephone counseling and medication monitoring intervention was well accepted by adult patients starting treatment for depression in primary care. The intervention seems to significantly improve depression outcomes without affecting the number of visits for treatment of depression.

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MS*

See related editorial on  
pages 191-193.

*This paper is available at [ecp.acponline.org](http://ecp.acponline.org).*

The prevalence of major depression among U.S. adults is estimated at 6% to 10%,<sup>1-4</sup> and depression is one of the most common illnesses seen and treated in the primary care setting.<sup>3-6</sup> Typically, primary care physicians treat adult depression with antidepressant medication and secondary options (e.g., mental health referrals) as needed.<sup>7-10</sup>

Deficiencies in this model exist on many levels.<sup>5, 11-13</sup> One third of depressed adults who receive an accurate diagnosis in primary care discontinue their antidepressant medication during the first month of treatment,<sup>4, 5, 12, 13</sup> and as many as one half of depressed patients who receive mental health referrals for psychiatric and/or other mental health services (e.g., problem-focused psychotherapy) fail to complete the referral.<sup>6, 7</sup> Social stigma associated with depression, fear of meeting a new doctor or therapist, transportation problems, poor communication between the primary care physician and mental health provider, insufficient provider time, and restricted appointment availability among specialty providers may be barriers to treatment.<sup>7, 14, 15</sup>

At the other end of the treatment spectrum is an alternate model that integrates antidepressant medication and in-person psychotherapy in a collaborative manner. This model has been shown to be effective for improving adult depression in primary care in a recent randomized trial.<sup>14</sup> However, many of the treatment barriers also occur in this model, which may explain why several epidemiologic studies of community and primary care populations show that only one in three people with major depression actually receive such integrated treatments.<sup>16, 17</sup>

Between the typical primary care and the intensive collaborative care approaches are a variety of telephone-based interventions. Our study team<sup>18, 19</sup> developed and tested interventions that seem to be promising as cost-effective adjuncts to primary care management of adult depression. These "case-management" interventions involve systematic medication, visit, and symptom monitoring; coordination of patient care with the primary physician; and follow-up prompting by a mental health specialist, or "population manager." These simple and inexpensive interventions modestly reduce depressive symptoms, increase quality of care, and promote better adherence to treatment regimens than usual care practices.

To see whether we could improve on the modest effect of our previous telephone case management interventions, in the present study we examined the feasibility and effectiveness of an HMO-based telephone counseling program for adults with major depression. In essence, this program adds telephone-based counseling to case-management activities. Although a recent pilot

study testing a six-session problem-solving program for adults with minor depression showed favorable depression outcomes,<sup>20</sup> little is known about the effects of a telephone counseling program for adults with more persistent and severe symptoms of depression treated in primary care.

The goals of our study were two-fold: to develop and implement a multifaceted telephone-based intervention program for adult patients beginning treatment for major depression in primary care and to evaluate the feasibility, effectiveness, and cost of implementing the program.

## Methods

### Study Setting

The setting for this study was the Olympia primary care clinic of Group Health Cooperative of Puget Sound (GHC), an HMO that serves more than 450,000 persons in western Washington. Twenty-five board-certified family practice physicians from the Olympia primary care clinic participated in the study over a 6-month period. GHC maintains an extensive automated system that catalogues pharmacy activity and outpatient visits.

### Patients

Adult patients who met the criteria for depression according to their primary care physician and who had agreed to start antidepressant treatment were eligible for this study. Computerized encounter data were used to identify these patients within 30 days of their index prescription. Patients who satisfied any of the following criteria on the basis of automated records of physician diagnosis and visits were excluded: diagnosis of bipolar disorder, schizophrenia, or schizoaffective disorder during the past 2 years; diagnosis of active alcohol or other substance abuse during the previous 90 days; or visit to a psychiatrist within the previous 90 days. Study invitation letters were mailed to eligible patients within 4 days of identification.

Eligible patients were contacted 5 to 7 days later by a research assistant who provided a complete description of the study procedures and program. Eligible patients who consented to participate in the program were asked to complete a 20-item depression questionnaire extracted from the Hopkins symptom checklist, a standard self-rated measure of current psychiatric symptoms.<sup>21</sup> The recruitment procedure and the study protocol were approved by the institutional review boards of GHC, Seattle, Washington.

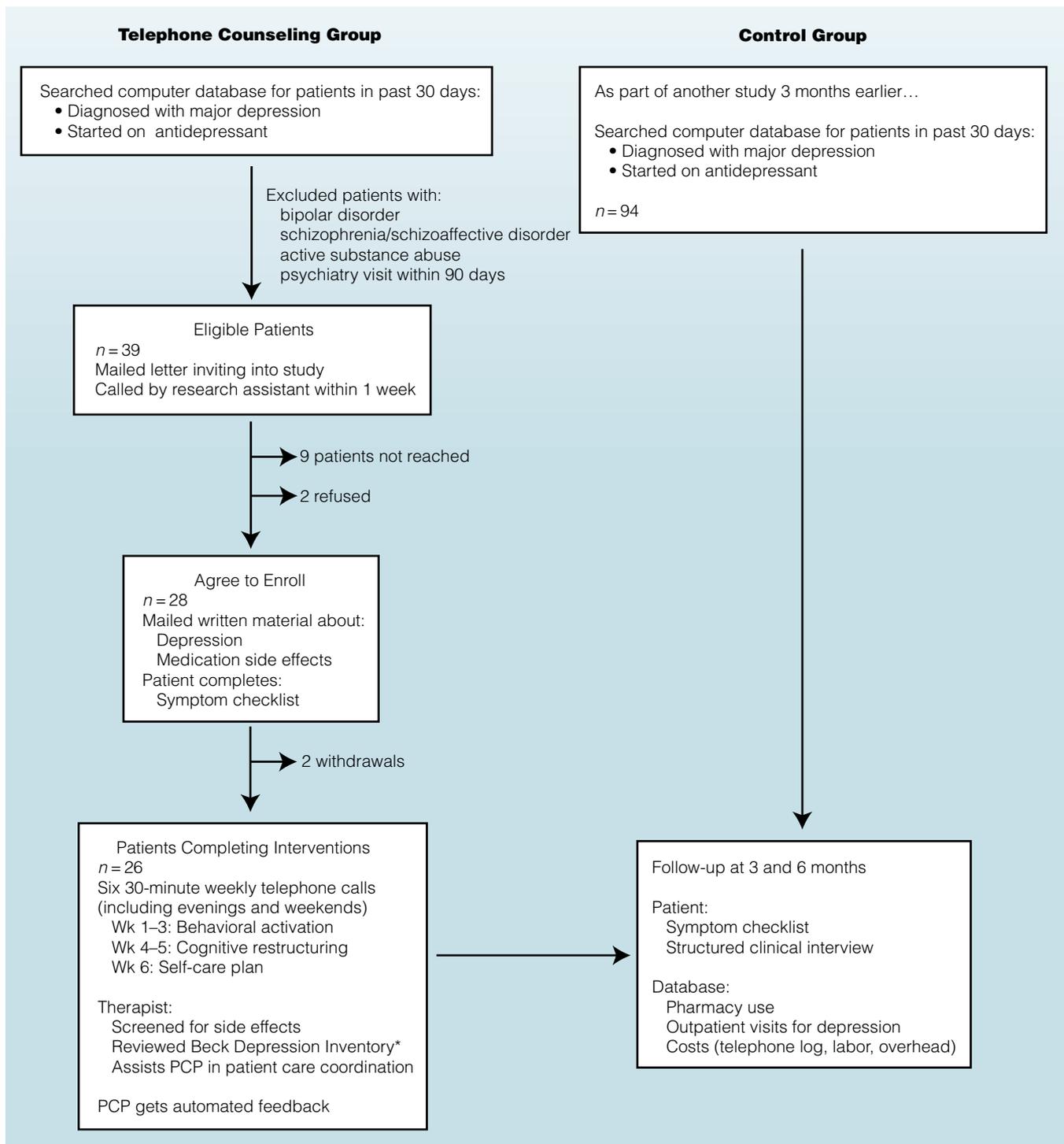
Consenting patients were enrolled in the research study and were mailed written educational materials

addressing depression (Time Life Medical's Depression Self-Care Companion for Better Living)—a joint effort between Time Life Medical and GHC's Center for Health Studies of Puget Sound and the University of Washington<sup>22</sup>—1 week before the first introductory telephone session. To facilitate telephone counseling, phone calls were made at times that were convenient for

the patients, including weekends and evenings. An outline of the study is presented in **Figure 1**.

### Intervention: Telephone Counseling

Before the first telephone session, educational materials<sup>22</sup> that addressed depression (e.g., management of



**FIGURE 1. Study overview.** \*The Beck Depression Inventory was assessed only in the telephone counseling group for monitoring purposes. (Data not reported here.) PCP = primary care physician.

common side effects from antidepressants) were mailed to each patient and were used in unison by the therapist and patient during each session. In addition, patients completed a Beck Depression Inventory (data not presented here) and were screened for potential side effects of antidepressant medication during each call.

The cognitive-behavioral intervention incorporated principles of the transtheoretical model of behavioral change<sup>24, 25</sup> (**Glossary**) and previously tested primary care in-person and telephone-based interventions for depressed adults.<sup>14, 18, 19</sup> Specifically, this intervention involved six half-hour cognitive-behavioral sessions delivered over the telephone by a master's-level therapist trained in counseling psychology. The first three sessions targeted behavioral activation (scheduling pleasant events, balancing challenging tasks and duties with positive activities, and problem solving), while sessions four and five targeted cognitive restructuring (reducing negative thoughts/increasing positive thoughts and confronting irrational thoughts). Session six was reserved for evaluation of overall progress and to develop a self-care plan to maintain positive changes and prevent relapse. The self-care plan contained a calendar whereby patients chose specific days throughout the next 3 to 4 months to practice specific skills learned in the program. Patients were then encouraged to share this self-care plan with their primary care physician during the next check-back visit.

Computerized algorithms were used to generate specific reports for the primary care physician after each telephone session. Each report contained information on the date of the last antidepressant refill, prescribed dose, apparent consumed dose (based on timing of refills), date of last follow-up visit, date of next scheduled follow-up visit (if any), previous psychiatric hospitalization, past antidepressant medications received, severity of depression, and overall progress in the program. If the report contained any information that required immediate action (e.g., severe side effects reported with the medication), the phone counselor promptly contacted the patient's primary care physician and assisted him or her in implementing any treatment recommendations (e.g., advising the patient to discontinue the medication, reducing or increasing the dose, and scheduling follow-up visits).

### **Control Group**

A control group ( $n=94$ ) was used for comparing clinical, care, and functional outcomes in a before-after design (**Figure 1**). This group was previously identified and enrolled 3 months before at the same GHC clinic as part of a large-scale randomized trial to test the effect of telephone monitoring, feedback, and case management on adult depression outcomes.<sup>19</sup> The control group repre-

sented the "usual care" arm of the trial and did not receive the additional monitoring, feedback, or case management. Identical recruitment and outcome assessment protocols were used with both intervention and control groups. Although available resources could not accommodate a true randomized trial, we believe that this "piggyback" study design offers the most practical approach to compare outcome data.

## **Measures**

### **Clinical**

A research assistant contacted all participants 3 and 6 months after enrollment to complete the following: the 20-item symptom checklist<sup>21</sup> and the structured clinical interview according to the *Diagnostic and Statistical Manual*, edition 4 (DSM-IV)<sup>23</sup> (SCID) current version, a structured depression module for assessment of psychiatric diagnoses. It should be noted that to minimize respondent burden and to avoid compromising the initial participation rate, only the symptom checklist was administered during baseline assessment. Previous randomized trials in our primary care system that have used the symptom checklist score as an outcome measure support the following depression severity estimates: 0.75 = remission; greater than 0.75 to 1.5 = mild depression; greater than 1.5 to 2.0 = moderate depression; and greater than 2.0 = severe depression.<sup>14, 19, 20</sup>

### **Utilization**

GHC's automated system provided pharmacy and visit information, including duration and dose of antidepressant treatment received and number of visits to mental health providers and to primary care providers (our automated system has specific codes to identify whether a visit was made for depression or another condition). The dose of antidepressant medication was measured by using a low-dose threshold<sup>4</sup> (e.g., 75 mg/d imipramine, 10 mg/d fluoxetine) or a moderate threshold approximately twice as high (reflecting doses considered adequate by psychiatrists).

### **Analysis**

Mean follow-up scores were evaluated by a repeated measures analysis of covariance after patient age, sex, baseline symptom checklist scores, and chronic disease scores (a measure of chronic medical morbidity based on computerized pharmacy records) were adjusted for.<sup>26</sup> Program costs were estimated by using phone counselor contact logs (number of contact attempts and number and length of contacts made with patients and physicians), actual labor costs (salary and benefits), and customary overhead costs (e.g., facilities and administrative

**TABLE 1**  
**Comparison of Baseline Characteristics**

VARIABLE	TELEPHONE COUNSELING GROUP (n=28)	CONTROL GROUP (n=94)
Age (mean ± SD)	49.5 (13)	46.9 (15)
Female	57%	73%
Symptom checklist score (mean ± SD) <sup>†</sup>	2.01 (0.50)	1.76 (0.74)*

\* $P > 0.10$

<sup>†</sup>Symptom checklist scores for depression may be interpreted as follows: 0–0.75 = remission; >0.75–1.5 = mild depression; >1.5–2.0 = moderate depression; and >2.0 = severe depression.<sup>14, 19, 20</sup>

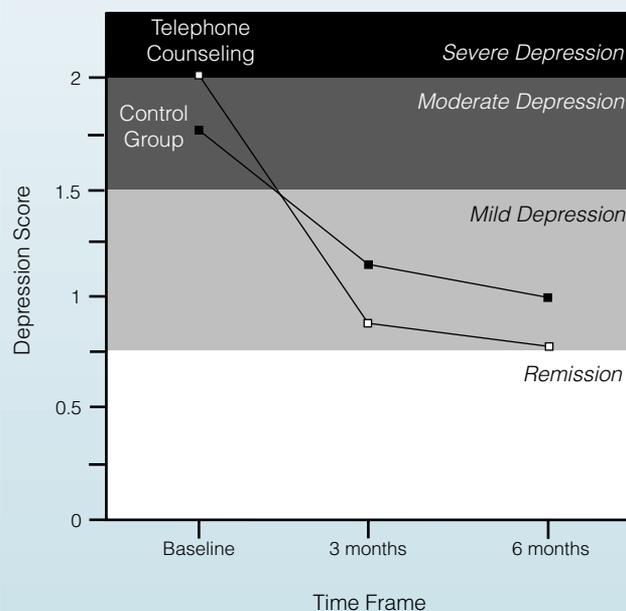
overhead—estimated at 45% of labor costs). Phone counselor productivity time was estimated at 80% in direct care activities, with the remainder spent in recordkeeping, supervision, and other administrative tasks.

### Results

Thirty-nine patients were identified by the GHC automated database as meeting the study's eligibility criteria. Of these patients, nine could not be contacted by telephone and two declined to participate, resulting in an enrolled sample of 28 participants, or a 93% participation rate for patients contacted. Two participants withdrew (one patient changed health plans, and the other felt that he would not benefit from the service). Thus, a total of 26 participants completed the 6-week intervention, resulting in a 92% retention rate. Baseline characteristics of telephone group and control group participants are illustrated in **Table 1**. Mean baseline symptom checklist scores for the telephone counseling group were higher than those of the control group (2.01 vs. 1.76), but the differences were not significant ( $P = 0.10$ ).

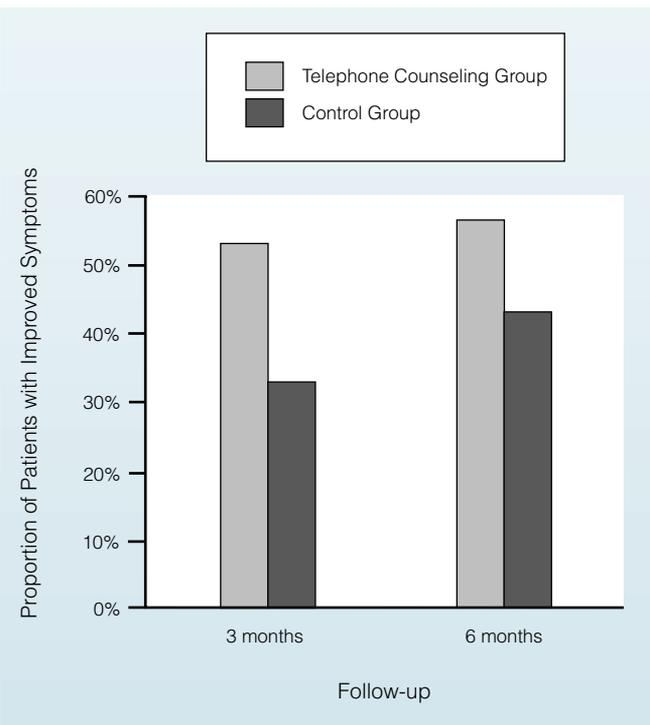
Follow-up measures were completed by 25 participants at 3 months after enrollment (1 participant moved to another state and could not be contacted for both follow-up assessments) and 24 participants at 6 months after enrollment (1 participant refused the 6-month follow-up). These results reflect a 96% rate for 3-month follow-up and a 92% rate for 6-month follow-up. Disenrolled patients did not significantly differ from enrolled patients in clinical, functional, or demographic characteristics.

Clinical and quality-of-care outcomes were measured at baseline and at 3 and 6 months for the telephone counseling group ( $n = 28$ ) and the control group ( $n = 94$ ).



**FIGURE 2.** Depression scores according to the Hopkins symptom checklist over time.  $P = 0.03$  for telephone counseling versus control group at 3 and 6 months.

Comparison of symptom checklist depression scores between both groups over time is illustrated in **Figure 2**. In a repeated measures analysis of covariance with



**FIGURE 3.** Proportion of telephone counseling and control group patients with improved symptoms (defined as a decrease of 50% or more in symptom checklist score compared with baseline assessment) at 3 and 6 months; differences were not statistically significant.

adjustments for patient age, sex, baseline symptom checklist scores, and chronic disease scores, mean follow-up symptom checklist scores were significantly lower in the telephone counseling group than in the control group ( $P = 0.03$ ). At 3-month follow-up, the adjusted symptom checklist scores for the telephone counseling group were 0.89 and 1.13 for the control group; at 6-month follow-up, these scores were 0.79 and 0.95, respectively.

Figure 3 illustrates the proportion of patients who had a 50% or greater improvement in symptom checklist depression scores—a standard measure for assessing treatment response,<sup>27</sup> and Figure 4 shows the proportion of patients with persistent DSM-IV major depression per SCID assessment across time. Telephone counseling patients had better outcomes on both measures during each follow-up, but these differences were not statistically significant.

Data on antidepressant dose levels and antidepressant treatment actually received during the 6 months after the initial prescription are illustrated in Figure 5. Dose levels were based on two standards: a low threshold equal to the lower limit recommended by the Agency for Health Care Policy and Research guidelines for management of depression in primary care (e.g., 10 mg/d fluoxetine)<sup>4</sup> and a moderate threshold equal to two times the low threshold, which reflects dose levels generally considered adequate by psychiatrists. Based on automated prescription data, telephone counseling patients were twice as likely to adhere to the antidepressant regimen at a moderate dose than were control group patients across time, although this difference was not statistically significant ( $P = 0.12$ ). Data on outpatient visits made for depression (based on computerized visit data) did not yield any significant differences between groups (the telephone counseling group had an average of 2.9 such visits compared with 2.8 visits for the control group;  $P = 0.9$ ). Program costs per telephone counseling patient were estimated to be \$153, or approximately \$26 per session.

## Discussion

The results of our study suggest that this multifaceted program is feasible and may be an effective adjunct for treatment of depressed adults in primary care. Integrated psychoeducation and cognitive-behavioral treatment was successfully delivered over the telephone by a master's-level therapist, with more than 93% of patients agreeing to participate and 92% completing the 6-week intervention—suggesting that this new model of care is acceptable to patients and may improve access to treatment.

Telephone counseling patients showed significant improvements in symptom checklist depression scores

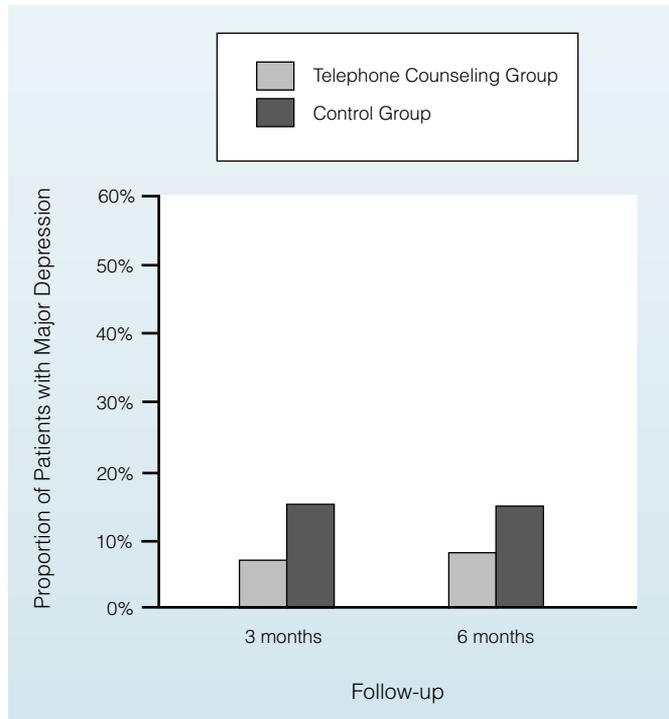


FIGURE 4. Proportion of telephone counseling and control group patients meeting *Diagnostic and Statistical Manual*, criteria for major depression at 3 and 6 months; differences in SCID scores were not statistically significant.

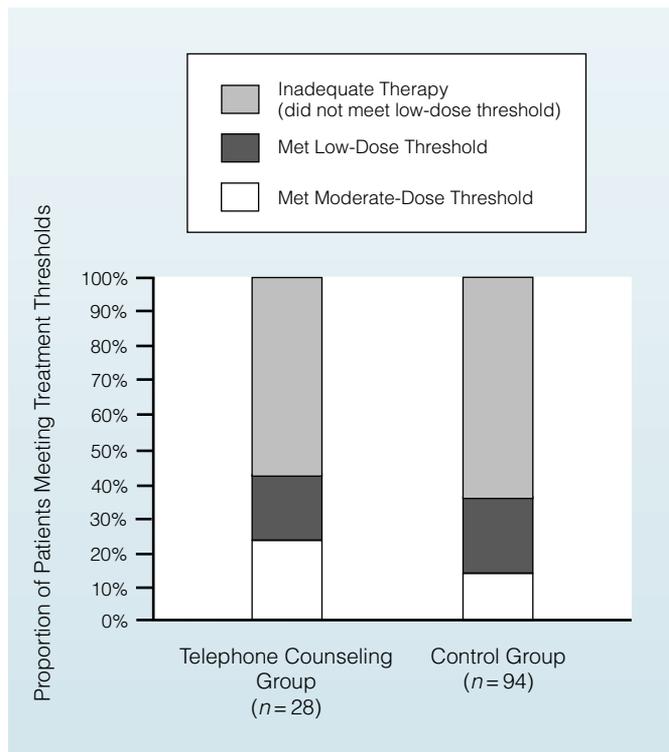


FIGURE 5. Adequacy of antidepressant administration for the 6-month period after the initial prescription. Patients met the low-dose threshold if they received at least 90 days of medication at a dose equivalent to 10 mg fluoxetine; the moderate-dose threshold required at least 90 days of the equivalent of 20 mg fluoxetine.

compared with control group patients across time. These scores reflect an effect that lies between our previous programs, which involved a less intensive and more economical case management trial, and a more intensive—and expensive—in-person trial (Table 2). In addition, the intervention improved the process of care for depression among telephone counseling patients, resulting in more intensive pharmacotherapy at a range recommended by the Agency for Health Care Policy and Research guidelines<sup>4</sup> versus usual care. The intervention was not associated with any significant increases in the number of primary care visits.

Limitations of this study include the following. Our patient population size was low ( $n=28$ ), which decreases the precision of estimates. The control group did not provide a true, randomized comparison despite our use of exact recruitment, clinic site, and outcome-assessment protocols. Our patient population was predominantly white and middle class, which makes generalization to other socioeconomic and cultural groups difficult. Patient eligibility was based on a physician's diagnosis of depression in the primary care setting, which tends to be inaccurate in about 50% of cases,<sup>2, 4, 16, 27–29</sup> and we had no systematic method to validate the use of exclusion criteria. The high participation rate among the telephone counseling group may be because those patients had already agreed to use antidepressant medication. Adherence to the intervention (e.g., use of the self-care plan by the patient and provider) was not assessed, and this may have diluted the effect of our intervention. Finally, the multifaceted nature of the program made it difficult to assess

which part of the program—the educational materials, medication monitoring, or the cognitive-behavioral telephone counseling—was the most helpful. To test the active components of this program, future studies are needed to examine the component-specific benefits to patients and providers.

Despite these limitations, our findings are consistent with other randomized trials in the primary care setting that involved less-intensive psychosocial interventions delivered in person or over the telephone. Such interventions have successfully improved the quality of treatment for adults with diabetes,<sup>30, 31</sup> arthritis,<sup>32</sup> tobacco addiction,<sup>33</sup> and other medical conditions.<sup>34</sup> These intervention programs used a standardized approach when treating a homogenous (e.g., arthritic patients only) population in person or over the telephone. This approach seems to be a key element in delivering effective psychosocial interventions in primary care practices<sup>35</sup> and may have accounted for some of the differences in outcome between the telephone counseling and control group.

In particular, our standardized approach involved a step-by-step process tailored to the individual's level of desire and confidence to make positive lifestyle changes. In addition to psychoeducation, participants were invited to choose from a variety of cognitive-behavioral strategies aimed at improving their health and lifestyle. Near the end of the program, the most helpful strategies were determined, and to maintain positive changes over time, steps were taken to integrate key strategies into the participants' lifestyles.

**TABLE 2**

**Comparison of Program-Specific Interventions for Adults Starting Primary Care Treatment for Depression**

PROGRAM	INTERVENTION	INCREMENTAL COST	EFFECT ON ADJUSTED SYMPTOM CHECKLIST DEPRESSION SCORES (INTERVENTION VS. CONTROL)
Case management <sup>19</sup>	Two brief telephone contacts involving symptom monitoring, physician feedback, and management of care.	\$80.00	0.14
Telephone counseling (present study)	Six half-hour telephone contacts involving psychoeducation and cognitive-behavioral counseling, plus feedback and support of treatment activities.	\$150.00–\$175.00	0.28
Collaborative care <sup>14</sup>	Initial 1-hour in-person intake, followed by five half-hour in-person contacts involving psychoeducation and cognitive-behavioral counseling. Four post-intervention telephone contacts were done to monitor and maintain patient progress.	\$350.00	0.30–0.40

Furthermore, our program emphasized a clear and consistent partnership between the patient and telephone counselor during each session, in which lifestyle challenges, responsibilities, and goals were addressed as a team. We suspect that this “partnership” was also helpful for depressed patients to make the lifestyle changes they desired and needed.

Finally, our program was practical and efficient. Patients were able to receive care and support in the comfort of their own home at a time that was convenient, including evenings and weekends. The average cost of the 6-week intervention was estimated to be \$26 per session. This cost was far lower than the average cost of treatment of major depression in primary care with intensive in-person psychotherapy, which has been estimated to be \$92 per session.<sup>36</sup>

In conclusion, our telephone-based intervention seems to be a feasible and effective approach for treating depressed adults in primary care. The intervention improved treatment of depression and extended the reach of behavioral interventions. The integration of cognitive-behavioral strategies delivered over the telephone appears to be an acceptable and accessible service. As the incidence of depression increases in an already-beleaguered primary care climate, this alternate model for improving depression treatment may become invaluable to both patient and provider. Further research is needed to test the efficacy of this model in a large-scale randomized trial.

## Take-Home Points

- **Clinical and logistical deficiencies exist in the primary care model for treatment of adult depression.**
- **We developed and implemented a telephone-based medication monitoring and counseling support program for adults starting depression treatment in primary care.**
- **More than 90% of invited patients agreed to participate and completed the 6-week program.**
- **Compared with patients in a contemporaneous control group, telephone counseling patients had significantly lower depressive symptoms over the 6-month follow-up period, with overall program costs estimated at about \$150.**
- **Telephone counseling may be an affordable and efficient adjunct for improving depression treatment in primary care.**

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## Glossary

**Cognitive-behavioral treatment.** A structured form of psychotherapy focused on increasing involvement in positive or rewarding activities (e.g., scheduling time to walk with a friend twice a week) and learning to identify and challenge exaggerated negative thoughts (e.g., developing a personal list of most common “automatic negative thoughts” along with possible “positive alternative thoughts” to use as substitutes).

**Transtheoretical model of behavioral change.** A model describing the “stages of change” common to a wide variety of behaviors (e.g., smoking cessation, dietary change, starting treatment for depression). Typical stages of change include precontemplation, contemplation, preparation, action, and maintenance. This model holds that effective behavioral interventions must be matched to an individual’s current readiness to change. For example, a depression intervention for “precontemplators” might focus on building motivation by identifying possible benefits of starting depression treatment. An intervention for those in the action stage would instead focus on specific strategies for taking medication regularly and increasing involvement in positive activities.