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The Effect of Telephone-Facilitated Depression Care on Older, Medically Ill Patients

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Abstract

The objective of this study was to determine the effectiveness of a telephone-facilitated depression care protocol in older, medically ill adults compared to routine care. A 12-week double blind randomized controlled trial was conducted in recently discharged primary care patients (N=124). Depression was assessed with the Patient Health Questionnaire-9. Primary care providers were notified of the level of depression severity and indications for treatment but neither they nor the patients were contacted by a psychiatrist or other mental health professional. The primary outcome was initiation of treatment. Secondary outcomes were symptoms reduction and depression remission rates. There were no significant outcome differences between the facilitated and routine care groups. This study showed that older, medically ill adults may require a level of depression care that goes beyond a telephone-facilitated protocol.

Keywords

Depression; Geriatrics; Primary Care; Telemedicine; Collaborative treatment; Healthcare costs

Introduction

Effective treatment of depressive disorders in primary care remains a promise largely unfulfilled, particularly for the aged.¹ Although the prescription of SSRI antidepressants in primary care is now wide spread, more treatment has not resulted in better treatment.² A number of studies indicate that integration of mental health specialists into primary care sites provides superior results compared to routine care or off-site referral to a mental health clinic.³⁻⁵ Nonetheless the integration of mental health specialists is not considered economically viable.⁶

In contrast to an “integrated model” where mental health specialists are co-located with primary care clinicians, a “disease management model” utilizing behavioral health managers backed up by psychiatrists has demonstrated benefits.⁷ The critical element which distinguishes disease management from routine care is a third party, usually a masters level

Conflict of Interest

Authors declare having no conflicts of interest.

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social worker, psychologist, or nurse, backed up by a specialist, who collaborates with the primary care provider, patient, and family to achieve superior outcomes. Even when routine care is enhanced by improved access to specialist consultation, the collaborative, disease management model proves superior. A number of large-scale, multisite studies have shown greater rates of response and remission as well as reduced levels of suicidality^{3,4} and costs⁸ associated with the disease management depression care model compared to enhanced routine care. Telephone management of depression by behavioral health managers not located in the primary care sites also appears to be an effective alternative to integrated care,^{9,10} but can it provide adequate support to primary care physicians in initiating treatments that lead to symptom reduction? The authors hypothesized that such a telephone facilitated depression care model would provide such support to primary care physicians with outcomes of increased rates of initiation of antidepressant treatment, treatment response, and symptom reduction compared to telephone assessment without facilitation.

Methods

Recently hospitalized older adults in an urban acute care hospital were screened for depression before discharge. Eligible individuals were approached for the study after discharge. Inclusion criteria were age ≥ 55 years, positive depression screen, and participation in the hospital's insurance contract management program which insured access medical and medication records. Patients were excluded from participation if they were discharged to a skilled nursing facility, had more than mild cognitive impairment, had a chart diagnosis of bipolar disorder or schizophrenia, or were actively taking an antipsychotic or mood stabilizer. Written consent from the primary care providers allowed investigators to obtain oral consent from the patients with the approval of the Montefiore Medical Center Institutional Review Board.

Subjects were randomized prior to the initial research interview, which occurred within the first week of discharge. Those in the routine care group were reassessed by telephone at 4 and 12 weeks. Those in the facilitated group were also reassessed by telephone at 2, 4, 6, 8 and 12 weeks, receiving techniques for solving problems, behavioral activation, self management, monitoring response to treatment and countering premature discontinuation of medication. The facilitator did not provide psychotherapy or make diagnoses. Respondents with thoughts of death or self harm were referred to a senior clinician (GJK) for assessment of suicide risk. Results of assessments for the facilitated group were sent to physicians with treatment guidelines adapted from the STAR*D study.¹¹ After initial reports that subjects demonstrated a low percentage of antidepressant therapy, the hospital medical director sent a letter to participating physicians requesting that they reply and state which treatment for depression, if any, they chose for their patients who were identified with depression in the study.

Measures

Symptoms of depression were first screened with the Patient Health Questionnaire (PHQ)-2, a two-item depression screen¹² conducted by either research or hospital personnel. Patients with a score of ≥ 3 on the PHQ-2 were approached for the study. The PHQ-9 was used to further assess symptoms and severity of depression.¹³ A score of ≥ 10 was indicative of major depressive disorder (MDD). The PHQ-9 has been validated against MDD in a meta-analysis of 14 studies with sensitivity 0.80 (95% CI: 0.71–0.87) and specificity 0.92 (95% CI: 0.88–0.95);¹⁴ and 0.63 (95% CI: 0.33–0.86) and 0.82 (95% CI: 0.78–0.85) respectively against the Structured Clinical Interview for DSM-IV in older primary care patients.¹⁵ It has also been shown to have good internal consistency with a Cronbach's alpha of 0.803.¹⁶

Response to treatment was defined as a 5-point decrease from baseline at any time during the 12-week trial. Remission was defined as a total score of ≤ 5 .¹⁷

Individuals with a level of memory impairment that might make their responses unreliable were excluded from the study using the Memory Impairment Screen (MIS)¹⁸ which is reliable for telephone use¹⁹ and provides an efficient and valid screen for dementia in primary care.²⁰

Pharmacy data were captured using Amisys® Client Server (ACS®), a comprehensive managed care system which maintained a full history of coverage and clinical data from the medical center systems. Information from the telephone interviews were collected using the McKesson CareEnhance™ Clinical Management System (CCMS®) which was integrated with ACS®.

Analytic Strategy

Descriptive statistics are presented as relative frequencies for categorical variables; and as means and standard deviations, or medians and ranges for continuous variables. Differences between the routine and facilitated care groups in baseline categorical variables were analyzed using chi-square tests, if assumptions were met, or Exact tests otherwise for categorical variables. Differences in ordinal variables were tested using Wilcoxon Rank Sum tests, or t-tests if normally distributed.

The primary outcome for comparison between those receiving the intervention and those that were not was the initiation of antidepressant medication; factors including treatment group were analyzed using a logistic regression model. Secondary outcomes included depressive symptoms by PHQ-9 score post-baseline, any response to treatment during the study period, and remission of depressive symptoms. Mixed effects models assessed the significance of the intervention on PHQ-9 outcomes, controlling for such covariates as medical comorbidities (from ICD-9 codes), age, gender, concomitant medications, and history of depression, and logistic regression was used to identify factors predictive of use of an antidepressant at each key timepoint. Covariates were retained in the final model if significant at $p < 0.20$.

Results

Of the 4767 patients that were screened for depression, 614 were positive. 200 consented, and 124 were eligible for the study by positive PHQ-9. After randomization, there were 64 in routine care, 60 in facilitated care. There were no significant differences in age, gender, race/ethnicity, insurance coverage, self-reported health between the two groups at baseline (Table 1). Self-rated health was significantly better in the facilitated group with 43.8% reported fair/poor health at 12 weeks vs. 75.0% in routine care ($p = 0.04$).

Table 2 displays primary and secondary outcomes of the two groups. There were significant differences in antidepressants prescribed at baseline and 4 weeks with the facilitated group having a higher rate of prescriptions at both timepoints, but this difference was not found at 12 weeks. There were also no significant differences found in depressive symptoms, response rates or remission rates. 41% of routine and 50% facilitated care groups met PHQ-9 response criteria by 12 weeks of observation ($p = 0.29$), but most did not achieve full remission (22% facilitated vs. 17% routine, $p = 0.53$). The logistic regression model of antidepressant initiation was reported in Table 3. After controlling for patient and clinical characteristics, the likelihood of a patient in the facilitated group receiving an antidepressant was 0.22 compared to the control group ($p = 0.01$).

Discussion

The authors hypothesized that depression care monitored by a non-clinician “telephone facilitator” would produce significantly higher rates in treatment initiation, treatment response, and depression remission compared to routine care. This suggested that the intervention might demonstrate the lower limit of quality improvement that might be achieved with a depression care manager working by telephone with minimal psychiatric review, but the results did not bear this out.

Although the findings did not confirm the hypothesis, they still provided insight into the strengths and weaknesses of this intervention for older, depressed adults.

Nearly half the subjects achieved response status based on repeated assessment with the PHQ-9, however, similar remission rates were not observed. The antidepressant doses may not have been titrated quickly enough, and subjects with non-response or partial response on therapeutic doses may not have been switched to a different antidepressant or augmented with two-drug therapy. Since patients were post-discharge, their recovery could have also been complicated by their acute medical conditions, causing providers and patients to have a divided focus for treatment considerations.

One modification of the current design would have been for the facilitator to have more effective contact with the physicians. When the design was altered to institute letters to the primary care providers requiring them to respond, the rates of antidepressant use nearly doubled. If this had occurred from the onset, there may have been a greater observed difference in antidepressant use among the two groups, resulting in greater response and remission rates. Due to the size of this sample, the study may have been underpowered to show any significant differences in treatment initiation and response. Another modification would have been for the psychiatrist to review cases of poor responders and directly advise physicians of the most appropriate plan of management instead of having physicians rely solely on the STAR*D guidelines.

The reliability of depression screening by multiple personnel could not be assured in this convenience sample, which may have accounted for the lower than expected rates of severe depressive symptoms. The patients and their physicians were blinded to their randomization assignment; however, the facilitator performed the final depression assessment for the facilitated group. This introduces the possibility of assessor bias. Nonetheless, there were no significant differences in final depressive symptoms or response rates between the two groups. Finally, as designed this study did not incorporate a routine review of cases by the study psychiatrist and did not require the psychiatrist to contact the primary care physician in cases where suicidality was not a concern.

Some findings were encouraging as related to retention of minorities and assessment of patients' health. It appears that an intervention of this type might be acceptable to older racial and ethnic minority patients. The majority of participants that enrolled in the study were African Americans and most remained until its completion. Those in the intervention group also showed a statistically significant improvement in their perception of health compared to the routine group at 12 weeks.

In summary, telephone screening and assessment provided a reliable, efficient means of detecting depression and was acceptable to most patients. The question remains, however, did it provide the minimal elements necessary to demonstrate both effectiveness and efficiency? Although the study did not explicitly answer this question, it has shown that behavioral health screenings and interventions can be conducted by telephone for older primary care patients. Any further investigation with this type of depression care

management model should include having the primary care providers consult directly with a psychiatrist rather than the facilitator to increase the chances of successful treatment institution.

Implications for Behavioral Health

In light of the study's limitations, there remain noteworthy implications for the field of behavioral health. This study focuses on a population of vulnerable individuals with regard to their depression care, and it has been well documented in the literature that untreated depression has a detrimental effect on physical health. Depression increases morbidity, mortality, readmission rates, and utilization of healthcare in older adults.^{21–23} Depression among older recently discharged individuals can also lead to shortened survival.²⁴ Although the proportion of older hospitalized patients with depression is high, their treatment rates with antidepressants are correspondingly low.²⁵

Screening for depression at discharge is an ideal time to detect depressive symptoms and provide treatment. Managing depression at this critical juncture could lead to improved behavioral health outcomes as well as improvement in acute and chronic medical illnesses. If modified, the proposed telephone facilitated depression care protocol may improve these outcomes in a way that is efficient and potentially cost effective.

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Table 1

Baseline Characteristics of Medically Ill, Primary Care Patients, Aged 55 years (N=124)

Characteristic	Routine Care n = 64	Facilitated Care n = 60	Chi-square or Exact test, df	P-value
Mean Age in years (SD)	68.6 (10.7)	69.1 (10.9)	0.31, 1 *	0.757
Female (%)	46/63 (73.0)	39/58 (67.2)	0.48, 1	0.488
Race/ethnicity (%)			2.61, 3	0.456
Latino	21/61 (34.4)	18/56 (32.1)		
African American	30/61 (49.1)	27/56 (48.2)		
Caucasian	5/61 (8.2)	9/56 (7.7)		
Other	5/61 (8.2)	2/56 (3.6)		
Insurance (%)			2.52, 2	0.283
Commercial	16/63 (25.4)	14/58 (24.1)		
Medicaid	2/63 (3.2)	6/58 (10.3)		
Medicare	45/63 (71.4)	38/58 (65.5)		
Self-rated health of fair or poor (%)	52/64 (81.3)	54/60 (90.0)	1.91, 1	0.167

*
t-statistic

Table 2

Primary and Secondary Outcomes of Medically Ill, Primary Care Patients, Aged 55 years (N=124)

Characteristic	Routine Care n = 64	Facilitated Care n = 60	Chi-square, df	P-value
Antidepressant use (%)				
Baseline *	11/64 (17.2)	20/60 (33.3)	4.31, 1	0.038
4 weeks *	5/36 (13.9)	14/39 (35.9)	4.79, 1	0.029
12 weeks	6/37 (16.2)	7/23 (30.4)	1.69, 1	0.194
PHQ-9** score median (min-max)				
Baseline	13 (10, 20)	13 (10, 21)	0.97, 1	0.334
4 weeks	9 (1, 23)	10 (3, 18)	-1.37, 1	0.171
12 weeks	10 (0, 26)	9 (2, 19)	-0.50, 1	0.615
Response Rate (%)	30/60 (50.0)	26/64 (40.6)	1.10, 1	0.294
Remission Rate (%)	13/60 (21.7)	11/64 (17.2)	0.40, 1	0.528

* P<0.05

** Nine-item Patient Health Questionnaire (PHQ-9) is a measure of depression symptoms and severity (0–4 minimal; 5–9 mild; 10–14 moderate; 15–19 moderately severe; 20–27 severe)¹⁴. Test statistic reported as z-statistic.

Table 3

Logistic Regression Model of Initiation of Antidepressant Therapy During 12-week Study Period with Adjusted Odds Ratios (N=124)

Effect	Estimate	95% Confidence Limits		P-VALUE
		Lower	Upper	
INTERCEPT				0.914
CONTROL GROUP vs FACILITATED GROUP	0.22	0.07	0.67	0.008
DIZZINESS	0.65	0.27	1.54	0.326
LACK OF APPETITE	1.00	0.49	2.05	0.997
SELF-RATED HEALTH	0.86	0.20	3.78	0.842
SEEING DIFFICULTY (N vs Y)	0.22	0.04	1.32	0.097
SLEEP AIDE (N vs Y)	1.27	0.28	5.72	0.752
AGE	0.98	0.93	1.03	0.426
GENDER (F vs M)	3.77	0.93	15.28	0.064
WALKING DIFFICULTY (N vs Y)	0.74	0.22	2.43	0.617
HEART DISEASE	1.10	0.26	4.69	0.897
COUNSELING	7.76	2.65	22.76	>0.001
BASELINE PHQ SCORE	0.98	0.80	1.21	0.845
INSURANCE COVERAGE	0.29	0.05	1.87	0.193
BLACK RACE	0.65	0.16	2.62	0.547
HISPANIC ETHNICITY	0.83	0.19	3.74	0.812