Improving Treatment of Depression Among Latinos with Diabetes Using Project Dulce and IMPACT

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**Objective**: To assess the feasibility and cost of integrating diabetes and depression care management in three community clinics serving a low-income and predominately Spanish-speaking Latino population

**Methods**: We screened diabetes patients for depression, and for those with depressive symptoms, we provided depression care management. We assessed changes in depressive symptoms (PHQ9), diabetes self care activities (nutrition, exercise, and medication adherence), and costs.

**Results**: Thirty-three percent of patients with diabetes had symptoms of major depression. Among 99 patients completing the study, PHQ9 scores declined by an average of 7.5 points from 14.8 to 7.3 (P<0.001). Clients averaged 6.7 visits with the care manager during the study period. Costs of depression care management were estimated to be $512 per participant.

**Conclusions**: Adding a depression care manager to an existing diabetes management team was effective at reducing depressive symptoms at a reasonable cost.
Depression is a common and costly comorbidity among persons with diabetes (1). Depression is believed to negatively affect self-management of diabetes through its adverse effects on energy, motivation, concentration, self-efficacy and interpersonal interactions (2). Depression is also associated with an impaired ability to follow physician recommendations for lifestyle changes including dietary restrictions, increased exercise and smoking cessation (2, 3). Depression in patients with diabetes is associated with more lapses in refilling oral hypoglycemic, lipid lowering and antihypertensive prescriptions and more missed medical appointments (3). Interventions that increased exercise and improved glycemic control may also decrease depressive symptoms in patients with diabetes, pointing to potential positive reinforcing effects of integrating depression care with diabetes management (4, 5).

We developed a model of co-located, co-managed diabetes and depression care by combining two established, evidence based care management programs: Project Dulce for diabetes and Improving Mood-Promoting Access to Collaborative Treatment (IMPACT) for depression. Project Dulce has been shown to improve diabetes outcomes among low-income, predominately Spanish-speaking Latinos with diabetes in San Diego County (6). Similarly, the IMPACT model has demonstrated its ability to improve depression outcomes (7, 8). Our goals were to assess the feasibility of a combined program in a low-income setting, to demonstrate reductions in depressive symptoms, and to estimate costs of the intervention in a pilot study in three community clinics.

METHODS

We developed a combined diabetes and depression management program by adding a depression care manager to an existing diabetes management team. Project Dulce is a culturally competent diabetes case management and includes a peer-led self-management training program. We felt IMPACT to be its sister in depression care management with its focus on screening, measurement, and personalized, evidence-based guideline care. Consistent with the philosophy of Project Dulce, the depression care manager was bilingual and bicultural and aware of the cultural issues involved in providing treatment for depression to a primarily Spanish speaking Latino population. The IMPACT model was made more flexible to respond to cultural norms and beliefs, low-literacy, socio-economic barriers, and stigma.

Project Dulce participants were screened for depression using the PHQ-9. Those identified with clinically significant depressive symptoms (defined as a PHQ-9 score of 10 or greater) had a visit scheduled with the depression care manager, who conducted a psychosocial history, reviewed educational materials, and discussed patient preferences for depression treatment with antidepressant medications and/or structured psychotherapy using Problem-Solving Treatment in Primary Care (PST-PC). All patients received education about depression and behavioral activation. As appropriate, the depression care manager consulted with the diabetes case manager and the patient’s primary care physician. New patients and patients needing treatment plan adjustments were discussed in weekly caseload review meetings with a consulting psychiatrist.

We measured depressive symptoms using the PHQ9 at baseline and at a six-month follow-up period. We calculated Cohen’s d statistics from self-reported diabetes self care activities related to nutrition, exercise, and glucose monitoring/medication adherence. (Summary of Diabetes self-care Activities form, in Spanish and in English, is available)
in the online appendix at http://diabetes.diabetesjournals.org.) Differences in these outcomes were assessed using t-tests. Detailed records of treatment allowed us to estimate the costs of the intervention.

RESULTS

We screened 499 participants in Project Dulce for depression using the PHQ9: 464 (93%) were eligible to participate in Project Dulce + IMPACT; 154 (33%) scored as having clinically significant depression; and 99 (64%) completed the study. Among those completing the study, the mean age was 53 (SD=9), 84% were female, 74% were Latino, and 71% noted Spanish as their primary language. Only one demographic characteristic was related to study participation: among those eligible to participate in the study, females were more likely to be identified as having symptoms of major depression than males (OR 1.9, P<.001).

Clients averaged 6.7 visits with the depression care manager during the study period (1 initial visit and 5.7 follow-up visits), with an average of 31.5 (SD 26.6) days between visits: 69% received PST and 35% received medication management. PHQ9 scores declined by an average of 7.5 points throughout the study period from 14.8 to 7.3 (SD 6.5; SE .66; P<.001; see Figure 1). Diabetes self care activities related to nutrition increased (Cohen’s d=0.26 ,P=.0187).

The depression care manager spent approximately 20 hours per week in direct patient care (face-to-face meetings) and another 10 hours per week on care coordination, scheduling, and administration. Each participant required, on average, a 30 minute consultation with the diabetes nurse case manager, 10 minutes with a consulting physician and 20 minutes with the consulting psychiatrist. Using current wages, benefits and rates for administration/overhead, we estimate that depression care management cost $512 per participant completing the study.

CONCLUSIONS

The combined diabetes and depression care management program tested in this pilot study was both feasible and highly effective in reducing depressive symptoms in a low-income, predominantly Spanish speaking Latino population. Because of the high rate of comorbid diabetes and depression in Latinos, a combined program may be more attractive to primary care clinics than a freestanding depression care program like IMPACT.

Our pilot study is limited by the lack of a randomly assigned control group and a relatively small sample size. This limits our statistical power to examine smaller but clinically important effects on health behaviors but it provides strong support for further research on this combined intervention approach.

Although the IMPACT model has been previously shown to be effective in older populations with diabetes (8), this is the first study to examine a fully integrated program. It is also the first study of IMPACT depression care management in a population of largely Spanish speaking Latinos. The cost of providing depression care management in this setting is modest and consistent with earlier cost estimates for the IMPACT program (7). Recent data from IMPACT (8) suggest that better depression care may be associated with lower total health care costs when compared to care as usual.

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FIGURE 1. Box-Plot Showing Depressive Symptoms at Baseline and Six-Month Follow-Up: Median (line), Inter-Quartile Range (box), Highest and Lowest (whiskers), and Outlier (dots) PHQ9 Scores.