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Comparative Effectiveness of Community Coalition Building versus Program Technical Assistance for Depression Services Quality Improvement: Do Both Health and Community-based Sector Clients Benefit?

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Abstract

Objective—To compare effectiveness of Community Engagement and Planning (CEP) and Resources for Services (RS) for depression collaborative care, among healthcare and community sector clients.

Methods—In under-resourced communities, within 93 programs randomized to CEP or RS, 1,246 depressed clients enrolled; 1,018 completed baseline, 6, 12, or 36-month surveys. Regressions estimated intervention and intervention-by-sector interaction effects on depression and mental health-related quality of life, community-prioritized outcomes and services use.

Results—For outcomes, there were few significant interactions and stratified findings suggest CEP client benefits in both sectors. For services use, significant 36-month interactions suggest greater increase under CEP in primary-care, self-help visits and appropriate treatment for community clients; and in community-based services for healthcare clients.

Conclusion—Findings suggest CEP relative to RS benefited clients across sectors and shifted long-term utilization across sectors. Implementation of depression collaborative care may expand its reach by inclusion of community as well as healthcare sector clients.

Depressive disorders are associated with increased morbidity and mortality (1), with racial and ethnic disparities in access, quality and outcomes of depression services (2). Studies document effectiveness of collaborative care for depression in primary care, which may reduce racial/ethnic outcome disparities (3). Such programs are often unavailable in under-resourced communities, where individuals may seek help outside of healthcare (4). To address such disparities, Community Partners in Care (CPIC) compared two approaches to implement an expanded model of depression collaborative care across healthcare (primary care, public health, mental health, substance abuse programs) and community sectors (homeless and social services, faith-based, hair salons, park senior centers, exercise clubs) (5).

One model, Resources for Services (RS), used expert technical assistance to provide trainings and resources to individual programs for improving depression services based on collaborative care models that also supported non-licensed staff (4, 6, 7). The other model, Community Engagement and Planning (CEP), supported coalitions across healthcare and community sectors to collaborate in expanded collaborative care for depression. For largely ethnic minority depressed clients from all sectors, those in CEP compared to RS improved in mental health-related quality of life (MHRQL) (6 and 12 months), physical exercise (6 months) and physical health-related quality of life (PHRQL) (36 months); had reduced probability of multiple homelessness risk factors (6 months), behavioral health hospitalization (6 and 12 months) and fewer hospitalization nights (36 months); fewer specialty medication visits and more faith-based and park/senior center depression services (6 months); and greater probability of any community sector depression services at 36 months. There were no significant intervention effects on depressive symptoms, but also no usual-care group.

Studies of collaborative care focus on healthcare patients, rather than similar depressed individuals in social-community settings who may not use health services. We have not previously reported intervention effects separately for clients from these two different sectors, and overall intervention effects could be largely limited to healthcare clients with

greater treatment access; or effects could differ with healthcare clients having health gains and community clients having social gains. Evidence of benefits of the coalition model across sectors could suggest that a community-wide approach drawing clients from diverse sectors may be beneficial for addressing disparities. There are few available data on coalition compared to technical assistance approaches to collaborative care for largely minority communities (8).

This study examines intervention-by-sector interaction effects on outcomes and long-term services utilization, and explores stratified findings on outcomes to confirm whether there is evidence for CEP benefits within each sector. We anticipated that some initial benefits (6,12 months) of CEP compared to RS in the whole sample would apply to each sector. We expected that by 3 years, due to greater emphasis on collaboration, CEP compared to RS would lead to greater services use outside of the sector where clients were identified (e.g., healthcare use by community clients and community service use by healthcare clients). The study is hypothesis-generating on how coalitions relative to technical support may affect clients in different sectors.

METHODS

Data are from CPIC (5), a group-randomized trial using Community-Partnered Participatory Research to promote equal leadership of community and academic partners (9). South Los Angeles and Hollywood-Metro were selected as under-resourced communities. Institutional review boards of RAND and participating agencies approved procedures, with post-enrollment [ClinicalTrials.gov](https://www.clinicaltrials.gov) registration (NCT01699789). Informed consent was obtained from clients.

CPIC's interventions encouraged but did not require use of depression services QI toolkits(4, 6, 7) (<http://www.communitypartnersincare.org/community-engagement/cep/>).

RS provided free technical assistance to individual programs for these toolkits, using a "train-the-trainer" model offered to program representatives via 12 phone or on-line webinars over two months. Representatives were encouraged to share toolkits with staff. A physician offered one site visit per primary-care site on medication management and clinical assessment. Referrals were made for supervision in Cognitive Behavioral Therapy.

CEP supported participating programs in each community in developing a coalition for developing and implementing a training plan and monitoring depression services based on the same toolkits. Program liaisons met bi-monthly for 4 months, supported by intervention experts and \$15K per coalition for innovations in toolkit adaptations, and monthly for a year for monitoring and developing innovations. Lists of participating clients were provided to CEP but not RS administrators for safekeeping in a locked file.

As described elsewhere (5), from November 2008 to August 2010, health and community-based programs serving adults or parents of child clients were identified. Within eligible and recruited agencies, eligible programs, (i.e., providing services to 15 clients/week, having 2 staff or 1 staff for small programs, identifying a liaison and not focused on psychotic disorders or home services) were enumerated, including programs serving four community-

prioritized groups: homeless, seniors, African Americans, and substance abuse programs. From 60 agencies, 133 programs were paired into units based on community, sector, size and funding sources and randomized to each intervention. At follow-up visits to confirm eligibility, 95 programs from 50 agencies enrolled. Participating and nonparticipating programs had comparable neighborhood characteristics (5).

Staff blinded to intervention assignment screened clients for eligibility in 2-3 day periods per program. Eligible clients were age ≥ 18 years, spoke English or Spanish, provided contact information, and were depressed (8-item Patient Health Questionnaire, modified PHQ-8 ≥ 10) and not grossly cognitively impaired. Of 4,649 adults approached March, 2010 to November, 2010, 4,440 (96%) agreed to screening in 93 programs; 1,322 (30%) were eligible; 1,246 (94%) consented; 981 (79%) completed baseline telephone surveys (April 27, 2010-January 2, 2011). Participants not refusing follow-up were invited to complete 6 and 12-month surveys. Enrollees with any survey data who had not refused follow-up or were known to have died were invited for 36-month surveys (5, 10) (Ong, in press).

Covariates include age, community, education, race/ethnicity, 12-month major depressive or dysthymic disorder (11) and baseline measure of each outcome.

Pre-specified primary outcomes are poor MHRQL (MCS-12 ≤ 40 (12)) and probable depression (PHQ-8 ≥ 10 (13)). Outcomes prioritized by community stakeholders were mental wellness (at least “sometimes in the prior 4 weeks” feeling calm or peaceful, having energy, or being happy (5)), PHRQL (PCS-12) (12); homelessness risk, i.e., homeless or living in a shelter or having 2 or more risk factors (i.e., no place to stay for 2 or more nights, eviction from a primary residence, financial crisis or food insecurity in the past 6 months); and behavioral health hospitalization nights.

Secondary outcomes included outpatient visits in the prior 6 months to health agencies (e.g., primary care, emergency or urgent care, specialty medication and counseling visits, any healthcare visit) and community agencies (e.g., social services for depression, any community depression services including social service, faith-based, parks, telephone hotline, and other places for information, referral, counseling, or medication management for depression/mental health) (5). Depression services were defined by participant report of receiving assessment, treatment or referral services. We summed “depression” visits and mental health self-help/family support visits. Treatment indicators included: use of antidepressants (5, 6) and probable appropriate treatment(6), defined as not depressed (PHQ-8 <10) or having ≥ 2 months of antidepressant use or ≥ 4 specialty or primary-care-depression visits.

We compared baseline characteristics by intervention status within sector for the 1,018 analytic sample, with item-level imputation for missing data (14) and wave-level imputation for missing surveys adjusting to the analytic sample; and weights to account for non-enrollment and attrition (see Appendix). Main analyses used Taylor series linearization with SUDAAN version 11.0.1 (<http://www.rti.org/sudaan/>), accounting for clustering, weighting, and multiple imputations.

We conducted intent-to-treat analyses with intervention status as the main independent variable, screening sector and intervention-by-sector interactions for estimating intervention effects within sector, categorized as “healthcare” (i.e., primary care/public health, mental health or substance abuse program) or “social-community” (i.e., homeless, social service, faith-based, park senior center, hair salon, exercise or other program). With attrition as a limitation (8), we present end-status as main analyses, permitting multiple imputation and response weights; and unweighted longitudinal trajectory sensitivity analyses (Appendix).

We used linear regression for continuous, logistic for binary, and Poisson for count variables, adjusted for baseline status of dependent variable and covariates. Results are presented from linear models as between-group differences, logistic as odds ratios (ORs), and Poisson as incidence rate ratios (IRRs), with 95%-confidence intervals; illustrated by standardized predictions from fitted regression models. As exploratory analyses, we do not adjust for multiple comparisons but discuss implications.

RESULTS

Of the analytic sample, 715 were from healthcare and 303 from social-community sectors. Baseline factors did not differ significantly by intervention status within sector, except in the social-community sector, where CEP clients were on average 6 years older than RS ($p=.03$). Most participants were African American or Latino and had family income below federal poverty (Appendix).

Intervention-by-sector interactions were not significant except CEP compared to RS was associated with greater reduction at 6 months in behavioral health hospitalization nights for community than healthcare clients ($IRR=.3$, $CI=.1-1.0$, $p=.04$). In stratified analyses, CEP compared to RS was associated with a lower likelihood ($OR=.7$, $CI=.5-0.9$, $p=.015$) of poor MHQL at 6 months for healthcare clients and at 12 months for social-community clients ($OR=.6$, $CI=.3-1.0$, $p=.045$). CEP compared to RS was associated among healthcare clients with a higher likelihood of mental wellness at 6 months ($OR=1.9$, $CI=1.0-3.3$, $p=.039$) and greater PHRQL at 36 months (between-group difference= 1.6 , $CI=.2-3.0$, $p=.025$); and among social-community clients with less homelessness risk at 6 months ($OR=.4$, $CI=0.2-0.9$, $p=.018$).

There are few significant interactions or within-sector intervention effects for outpatient use at 6 or 12 months (Table 1). Among healthcare clients there was reduced use of mental health specialty medication visits at 6 months ($IRR=.4$, $CI=.2-.6$, $p<.001$) and antidepressants at 12 months for CEP compared to RS clients. At 36 months, significant interactions showed greater increases under CEP compared to RS for community clients in primary-care visits, mental health self-help or family support-group days, use of antidepressants and antipsychotics, probable appropriate treatment, and a trend for any healthcare visits; yet greater increases for healthcare clients in social-service depression visits and any community-program depression visit (each $p<.01$). Longitudinal analyses confirmed these interactions as significant (see Appendix).

DISCUSSION

We found no consistent, significant intervention-by-sector interactions on outcomes, suggesting results for the combined sample largely apply across clients identified in healthcare and community sectors. In addition, stratified findings, confirmed by longitudinal sensitivity analyses, reinforce potential benefits of CEP relative to RS within each sector at some time point, in this largely ethnic minority sample. Thus, inclusion of community-sector depressed clients, unusual for a collaborative care study, may be a promising way to extend the reach of depression interventions otherwise largely limited to healthcare clients and sectors.

Findings on long-term outpatient use suggest that CEP's network approach relative to RS's technical support, 2 years after study intervention support ended, may over time have increased community clients' use of healthcare depression services and healthcare clients' engagement in community depression services. Whether this pattern reflects client learning from initial exposure or effects of persistent network ties, is an issue for future research, as is whether these shifts in utilization improve later outcomes. The level of significance, consistency across models, and affecting multiple utilization indicators, suggests despite multiple comparisons that effects may be real and merit potential replication in future studies.

Limitations include self-report measures, program-level randomization within two communities, multiple outcomes with few significant interactions and an exploratory approach.

CONCLUSION

This study may inform future studies of community health homes seeking to reduce disparities. Findings suggest that it is feasible and may expand the reach of collaborative care (15) to include in such efforts not only clients from traditional healthcare sectors but those with similar needs from social-community sectors.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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TABLE 1
Client Secondary Outcomes by Intervention Status from Intervention-by-Sector Interaction Model*

	Social-community Screening Sector						Healthcare Screening Sector								
	RS Estimate		CEP Estimate		CEP vs RS		RS Estimate		CEP Estimate		CEP vs RS		Interaction		
	Mean	95%CI	Mean	95%CI	IRR	95%CI	p	Mean	95%CI	IRR	95%CI	p	p		
Health Services															
No. of visits to a PCP			%	%	OR	OR	%	%	%	%	OR	OR			
6-mo follow-up	4.0	2.7-5.8	3.9	2.9-5.2	1.0	.6-1.6	.944	4.5	3.1-6.4	3.9	3.3-4.6	.9	.6-1.3	.484	.709
12-mo follow-up	3.0	2.3-3.9	3.7	2.7-5.1	1.2	.8-1.9	.338	3.2	2.3-4.4	3.5	3.0-4.2	1.1	.8-1.6	.580	.671
36-mo follow-up	2.4	2.0-2.9	4.5	3.1-6.4	1.9	1.3-2.8	.003	4.5	3.0-6.7	4.0	3.2-4.9	.9	.6-1.4	.578	.035
			%	%	OR	OR	%	%	%	%	OR	OR			
Any visit in healthcare sector															
6-mo follow-up	86.6	80.5-91.1	84.5	75.5-90.8	.8	.4-1.8	.646	90.9	86.6-94.0	89.2	84.0-92.9	.8	.4-1.6	.533	.950
12-mo follow-up	80.2	70.4-87.3	84.4	77.6-89.4	1.4	.7-2.7	.375	83.5	78.6-87.5	84.5	78.6-89.0	1.1	.7-1.8	.770	.592
36-mo follow-up	75.3	67.4-81.9	85.8	76.0-92.0	2.0	.9-4.5	.082	87.7	79.5-93.0	83.9	73.1-91.1	.7	.3-1.6	.402	.025
Community Services															
Any social services for depression															
6-mo follow-up	19.0	14.0-25.4	13.7	8.8-20.6	.7	.3-1.3	.203	17.0	12.4-22.9	19.0	14.5-24.5	1.2	.7-1.9	.578	.126
12-mo follow-up	12.9	8.2-19.7	8.8	3.9-17.9	.6	.2-1.9	.376	9.5	5.8-14.9	12.7	9.2-17.2	1.4	.7-2.8	.315	.133
36-mo follow-up	18.8	11.0-29.9	9.3	3.8-20.3	.4	.1-1.3	.122	10.5	7.0-15.5	21.0	13.3-31.2	2.3	1.1-4.8	.030	.034
Any community sector visit for depression															
6-mo follow-up	28.2	21.4-36.1	29.4	22.3-37.7	1.1	.6-1.8	.813	29.8	24.4-35.8	31.9	25.1-39.6	1.1	.7-1.7	.633	.892
12-mo follow-up	20.8	15.3-27.5	21.8	14.1-31.8	1.1	.5-2.2	.859	20.4	16.1-25.5	24.1	19.5-29.3	1.2	.8-1.9	.285	.640
36-mo follow-up	31.0	22.1-41.5	25.4	17.1-36.0	.8	.4-1.4	.337	27.3	21.9-33.4	39.8	32.2-47.9	1.8	1.2-2.8	.009	.036
Community and/or Healthcare service															
No. of days attended self-help or family support groups for MH problem															
6-mo follow-up	2.6	1.1-6.2	4.3	2.0-9.0	1.6	.5-5.1	.395	6.4	3.5-11.2	4.4	2.8-6.9	.7	.4-1.3	.262	.180
12-mo follow-up	2.6	.8-7.8	6.5	3.0-14.0	2.6	.7-10.0	.169	8.8	6.1-12.6	5.0	2.8-8.9	.6	.3-1.0	.060	.046

	Social-community Screening Sector						Healthcare Screening Sector									
	RS Estimate			CEP vs RS			RS Estimate			CEP Estimate			Interaction			
	Mean	95%CI	p	Mean	95%CI	p	Mean	95%CI	IRR	Mean	95%CI	IRR	Mean	95%CI	p	
36-mo follow-up	2.1	1.0-4.3	6.4	3.5-11.4	3.1	1.2-8.1	.024	7.9	5.1-12.1	5.3	2.8-9.7	.7	3-1.6	.301	.033	
No. of outpatient contacts for depression all sectors																
6-mo follow-up	17.2	9.4-30.9	21.2	14.5-30.8	1.2	.6-2.6	.541	24.9	17.8-34.7	22.2	16.7-29.4	.9	5-1.5	.628	.350	
12-mo follow-up	9.8	5.6-16.9	17.0	10.5-27.5	1.7	.8-3.7	.147	21.9	17.0-28.2	17.2	12.2-24.3	.8	5-1.1	.190	.047	
36-mo follow-up	10.7	6.9-16.5	17.2	10.9-26.9	1.6	.8-3.0	.144	25.8	19.7-33.6	21.3	13.5-33.2	.8	6-1.2	.305	.054	
Treatment																
Use of any antidepressant																
6-mo follow-up	31.4	24.4-39.2	30.6	21.0-42.2	1.0	.5-2.0	.894	44.0	34.7-53.7	35.5	28.3-43.4	.6	4-1.2	.131	.300	
12-mo follow-up	28.4	19.6-39.2	30.7	22.0-41.0	1.1	.5-2.5	.743	39.3	32.0-47.0	29.1	24.3-34.4	.6	4-0.9	.016	.143	
36-mo follow-up	14.2	9.2-21.2	33.1	24.7-42.6	3.2	1.6-6.4	.002	34.5	27.4-42.3	24.4	15.8-35.3	.6	3-1.2	.135	.011	
Probable appropriate treatment																
6-mo follow-up	74.1	65.0-81.0	75.5	67.2-82.3	1.1	.6-2.1	.802	77.9	69.6-84.5	79.2	74.1-83.6	1.1	7-1.8	.727	.991	
12-mo follow-up	70.6	57.1-81.3	73.6	63.0-82.0	1.2	.5-2.5	.693	76.6	71.7-80.9	72.8	64.8-79.6	.8	5-1.2	.327	.427	
36-mo follow-up	60.5	43.9-75.2	76.9	65.7-85.4	2.2	1.1-4.5	.033	72.8	65.1-79.4	65.5	57.4-72.9	.7	4-1.2	.169	.031	