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RESEARCH ARTICLE

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Integrating primary, behavioral and spiritual health care to improve patient outcomes

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ABSTRACT

Background: Residents of Webb County, Texas, along the U.S.-Mexico border suffer from health disparities which stem from extreme poverty, lower levels of educational attainment, and inadequate access to basic health care. The scarcity of primary care and behavioral health service providers is a key factor influencing higher-than-average disease prevalence and unfavorable disease management in the region. In 2015 Mercy Ministries of Laredo became one of eight subgrantees of a grant awarded by the Social Innovation Fund to Methodist Healthcare Ministries of San Antonio to enhance/expand integrated primary care and behavioral health care services in medically underserved areas of South Texas.

Methods: Mercy's project embodied a 3-dimensional model of health and healthcare, to include physical, behavioral and spiritual needs and interventions. With strong support from a research design and analysis group, this small clinic was able to demonstrate statistically significant improved health outcomes of several interventions. A non-randomized quasi experimental design (QED) was used and participants chose whether to participate in the intervention (207) or control (203) group. Common variables for all eight subgrantees included five overarching measures (HbA1C, blood pressure, BMI, PHQ-9 and quality of life score) and depression outcomes were used to statistically power all subgrantee studies.

Results: Intervention group participants had significantly greater improvements in quality of life and anxiety symptoms when compared with comparison group participants. Intervention participants had a Duke General Health score 4.01 points higher and a GAD-7 score 0.79 points lower than those in the comparison group. There were also significant improvements for intervention participants over time for these two outcomes as well as depression symptoms.

Conclusions: Grant funded resources enhanced health outcomes and prompted this small clinic to expand integrated primary and behavioral health services to serve the entire clinic population and promote integrated primary and behavioral health care for other underserved populations.

ARTICLE HISTORY

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primary care, behavioral health care, research funding

Introduction

Residents of Webb County, Texas, along the U.S.-Mexico border suffer from health disparities due to extreme poverty, lower levels of educational attainment, and inadequate access to basic health care. The scarcity of primary care and behavioral health service providers is a key factor influencing higher-than-average disease prevalence and unfavorable disease management. In addition, Laredo, TX (located in Webb County) and surrounding communities continue to serve increasing numbers of behavioral health cases with limited personnel and service-based resources. The Sí Three: Integration of 3-D Health Services (Sí Three) initiative aimed to improve behavioral health conditions (e.g., depression, anxiety, and addictive behavior) and chronic disease conditions (e.g., hypertension, obesity, and diabetes) through interventions that impact the physical, behavioral, and spiritual health of patients as well as improving overall quality of life. Through participation in the program, patients were expected to have significantly better physical and behavioral health.

Background

The mission of Mercy Ministries of Laredo (Mercy) is to provide exceptional primary care services to the most underserved members of Webb County and the Laredo community. Mercy is always seeking funds to support its mission and new avenues to acquire funds. In May 2015, Mercy became one of eight subgrantees of Sí Texas: Social Innovation for a Healthy South Texas (Sí Texas), a $10 million grant received by Methodist Healthcare Ministries from the Social Innovation Fund (SIF), a program of the Federal Corporation for National and Community Service (CNCS). Methodist Healthcare Ministries

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contracted with Health Resources in Action (HRiA) to provide evaluation capacity building services to grantees.

Participants

Webb County has a population of approximately 275,910 residents. Ninety-five percent of the population is of Hispanic/Latino or Mexican descent and 22% of the population is not proficient in English [1]. In addition, 26.7% of the population is foreign born, irrespective of citizenship status, and 32% of the population is at or below the 200% federal poverty level. These data coincide closely with the percent of the population with less than a high school education (33%) [2]. Although the median age of this population is relatively young (28 years), it is estimated 33% are obese, 25% are physically inactive, and 16% are classified as excessive drinkers [3]. Estimates of the proportion of population with diabetes vary; in the Mercy clinic 40% of the patients have diabetes or prediabetes. The ratio of population to primary care provider is 2,920:1, nearly double that for the state overall (1,660:1), and the mental health provider ratio is similar (3,480:1) [3].

Scientific Background and Explanation of Rationale

Theories Used

Mercy's program is based on components of the integrated care model studied by Druss, Rohrbaugh, Levinson, & Rosenhech [4]. This model, involving integrated patient education and prevention, nurse practitioners, and increased interaction among the care team, found positive results in health outcomes for patients in the integrated care model compared to those receiving stand-alone medical services. The scientific literature has many examples of interventions targeting improved access to high-quality health care services in low-income populations; however, few studies have examined the integration of multiple behavioral-health services, including faith-based health services, to address concepts of physical and behavioral health and spiritual well-being. A growing body of evidence supports the benefits of integrated behavioral health with primary care as a way to improve population health in areas demographically similar to South Texas [5,6,7].

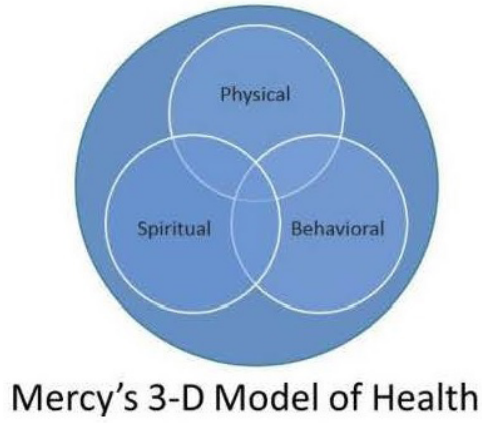

Figure 1: Mercy's 3-D Model of Health

The Sí Three model (See Figure 1) is based on a collaborative care model [8]. A collaborative care model can take many different forms and is defined as "a multicomponent, healthcare system-level intervention that uses case managers to link primary care providers, patients and mental health specialists" [8]. Case managers (navigators) are integral to the model and perform various functions, such as patient education, follow-up to track depression measures and adjustment of treatment plans. Components of collaborative care that Mercy included were screening for depression; educating and referring patients to appropriate services based on physical and behavioral health assessments; and quarterly follow-up encounters to monitor patient physical and behavioral health. Spirituality was assessed using the Spirituality Index of Wellbeing [9] to determine participant receptivity to spiritual counseling. A meta-analysis of randomized control trials of religious/spiritual counseling found greater improvements in psychological and spiritual outcomes as compared to alternate secular therapies [10]. These results suggest accommodating (adding to existing secular services) patient preferences for religious/spiritual services enhances treatment outcomes and decreases premature termination of treatment by one-third. Further, a review by Koenig found that religious-based psychological interventions resulted in faster symptom improvement for depression and anxiety compared to secular-based therapy [11].

Methods

The study utilized a non-randomized quasi-experimental design (QED) to evaluate the Sí Three program's impact over a 12-month study period. Impact of the program was assessed by comparing participants in the program (intervention group) to patients who did not participate (comparison group) on primary and secondary outcomes. Participants chose whether to participate in the intervention or comparison group. The use of the QED minimized threats to internal validity with the inclusion of an internal comparison group.

Intervention

The Nurse Practitioner was the referring provider and served as the patient navigator. A patient care coordinator assisted patients in completing survey forms, reviewed patient attendance at identified services (physical, behavioral, and spiritual), facilitated patient participation through phone calls or home visits, and greeted patients upon arrival for any clinic services. See Figure 2 for an illustration of the Sí Three patient-flow process.

Mercy's Sí Three program combined multiple approaches to offer as many resources as possible to patients, including integrated education, exercise, nutrition, and both medical and faith-based behavioral health counseling into the medical plan of care. All Mercy patients received a care plan, which was updated regularly to meet patient needs. Mercy's electronic medical record system (EPIC) was used to document both physical and behavioral health visits and measures, and whether a patient was in the intervention or comparison group. Comparison group services were provided as co-located services at the Mercy clinic rather than the integrated care intervention participants received.

Patient Protection

Institutional Review Board approval was received from Mercy Springfield and Texas A&M International University. Mercy's rigorous informed consent procedure was carefully followed to assure that clients were clear about the project and their role

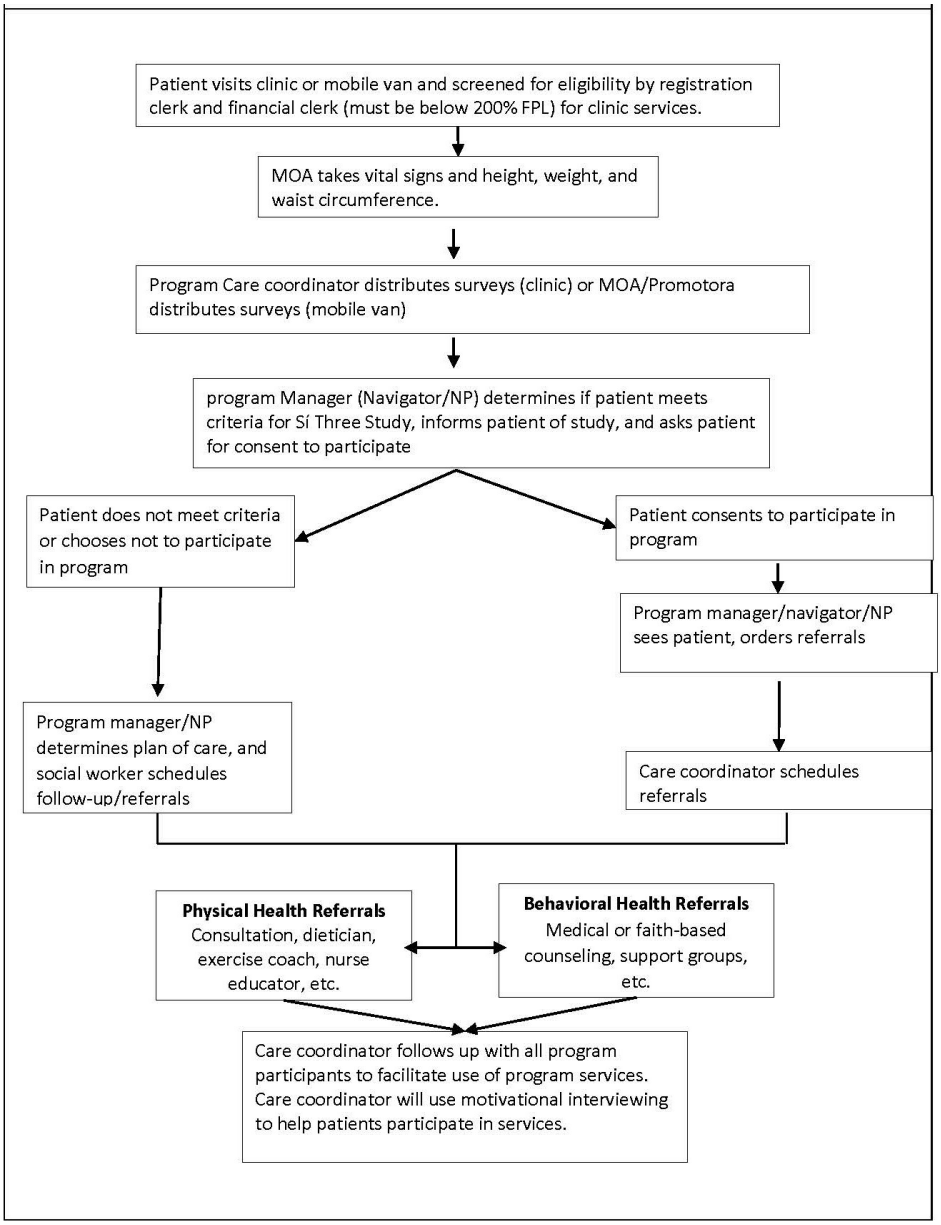

Figure 2: Sí Three Patient Flow Process

in it. Consent forms were printed in English and Spanish and were completed by the participant or read in either language when necessary for clear understanding.

Data Collection

Physical measures included HbA1c level to measure blood glucose concentration [12], blood pressure to assess for hypertension [13], and body mass index (calculated from height and weight) and waist circumference as an indicators of body fat [14]. HbA1c data were collected for only those patients who: (1) were known/self-reported as diabetic, (2) had an elevated blood glucose at the time of the clinic visit or (3) showed signs or symptoms of diabetes. Behavioral health measures included depressive symptoms assessed through the PHQ-9 instrument [15], anxiety symptoms assessed through the GAD-7 [16], addiction symptoms assessed through the CAGE-AID [17], and quality of life assessed through Duke Health Profile assessment tool [18]. Mercy assessed intervention and comparison participants on all measures at baseline and 6-month and 12-month follow-up.

The following sociodemographic covariates were collected at baseline from all participants: sex, ethnicity, age, employment status, marital status, primary language, smoking status, and alcohol consumption. In addition, Mercy collected data on participant spirituality through the Spirituality Index of Well-Being, a validated assessment tool [9].

Implementation evaluation included measures of participant retention at 6-month and 12-month follow-up; participant show rates to services; and participant and staff satisfaction surveys. HRiA also conducted interviews with staff at mid-point and end of the program and held focus groups with participants at the end of the program to identify facilitators and barriers of study implementation and participant satisfaction with the program.

Recruitment

Any Mercy clinic adult patient meeting the following eligibility criteria for physical, behavioral health (medical or faith-based) services was offered an opportunity to participate in the intervention group:

- PHQ-9 ≥ 5
- GAD-7 ≥ 5
- CAGE-AID ≥ 2
- Waist circumference ≥ 40 in men and ≥ 35 in women
- BMI ≥ 30
- Blood Pressure ≥ 140/90
- HbA1C ≥ 7.0%

Sample size

Because depression is one of the most common and major mental health impact measures, sample size calculations were created with PHQ-9 scores as the primary impact measure. The enrollment target was 410 total participants across study groups. Mercy enrolled 207 participants in the intervention and 203 in the primary comparison group. Figure 3 presents a CONSORT model patient flow diagram. The unit of assignment to study conditions was the individual patient.

Statistical Analysis

Study group baseline equivalence was evaluated using Pearson Chi-square tests for categorical variables and two-sample t tests for continuous variables, with a 2-sided statistical significance level of p=0.05. The research team adjusted for important covariates and potential confounders, based on prior clinical knowledge and bivariate results, in linear regression models

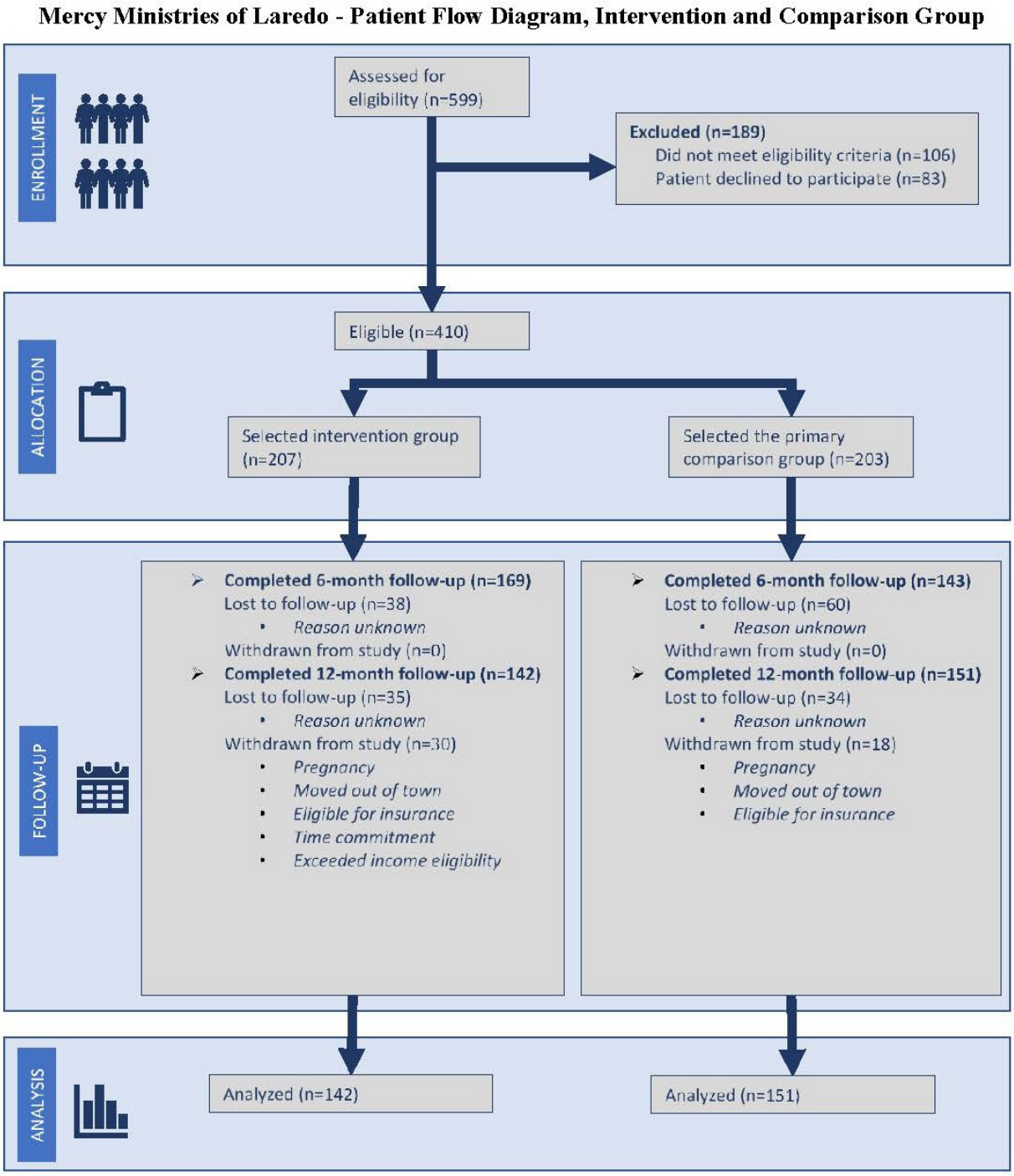

Figure 3: Patient Recruitment and Retention, Intervention and Comparison Groups

of each continuous outcome for the endpoint analysis [19]. Backward elimination model selection was used to assess the parsimony of these models. Covariates, except for age and sex, were removed from the model if their p-value was found to be greater than 0.15.

Because multiple follow-up measures form individual trajectories, secondary longitudinal analyses were used to assess whether the health outcome trajectories over time differed by intervention status [20]. Additional analyses were explored to understand whether these results differed within certain subgroups of the study population. Interaction terms between study group and covariates of interest were included in the models and assessed for statistical significance. Given Mercy's focus on faith-based care and the role of spirituality in health and wellness, one of the covariates included was the Spirituality Index score, separated into quintiles. Additionally, possible effect modification of baseline health condition (e.g. obesity, depression, diabetes) was assessed.

Results

Retention

At 12 months, Mercy retained 69% of the intervention group and 74% of the comparison group, for an overall retention rate of 71%, which is relatively high given that Mercy's population is transient and dynamic.

Baseline Equivalence

The intervention and comparison participants were statistically nonequivalent on two sociodemographic measures, two secondary health outcomes, and one primary health outcome (see Table 1). Intervention participants had a lower average Spirituality Index score and had a higher rate of unemployment compared to the comparison participants. Intervention participants had a lower average quality of life score and a higher average GAD-7 score than comparison group participants. The intervention participants began the study with a higher median PHQ-9 score than those in the comparison group.

Table 1: Study Participant Characteristics at Baseline

	Intervention (n=207)		Comparision (n=203)		P-value
	n	%	n	%	
Demographics					
Female sex	180	87.0	178	87.7	0.82
Ethnicity					
Hispanic	206	99.5	203	100.0	0.99
Non-Hispanic	1	0.5	0	0.0	
Age, mean (SD)	43.8(11.3)	--	44.3(10.3)	0.62	
Employment Status					
Employed	89	43.0	105	51.8	0.03
Unemployed	118	57.0	98	48.3	
Marital Status					
Married	113	54.6	105	51.7	0.86
Not Married	93	45.0	98	48.2	
Missing	1	--	0	--	
Primary Language Spoken					
English	26	12.6	24	11.8	0.82
Spanish	181	87.4	179	88.2	
Smoking Status					
Current Smoker	23	11.1	15	7.4	
Former Smoker	7	3.4	7	3.4	0.43
Never Smoker	177	85.5	181	89.2	
Alcohol Consumption					
Yes	43	21.4	40	20.0	
No	158	78.6	160	80.0	0.73
Missing	6	--	3	--	
Spirituality Index Score, mean (SD)	47.6(11.9)	--	50.2(12.1)	--	0.004
Health, mean (SD)					
BMI	33.2 (7.1)	--	32.5 (6.0)	--	0.26
PHQ-9 Score	6.7 (6.0)	--	4.4 (4.6)	--	<0.001
Duke General Health Score	67.7 (17.5)	--	74.5 (16.2)	--	<0.001
GAD-7 Score	6.2 (5.6)	--	4.3 (4.7)	--	<0.001
CAGE-AID Score	0.18 (0.65)	--	0.17 (0.64)	--	0.86
Systolic Blood Pressure	125.3 (18.4)	--	123.9 (16.5)	--	0.41
Diastolic Blood Pressure	74.9 (10.1)	--	73.5 (9.5)	--	0.16
HbA1c	7.4 (2.0)	--	7.1 (1.6)	--	0.31
Male Waist Circumference	41.5 (4.2)	--	43.0 (6.0)	--	0.31
Female Waist Circumference	43.7 (6.0)	--	43.5 (5.1)	--	0.76

Participant Receipt of Services

Intervention participants completed 1,617 primary care visits and 554 behavioral health integrated care visits while comparison group completed 1,380 primary care visits and 220 behavioral health visits. For each visit type, the intervention group had a higher volume of visits, but lower show rate than the comparison group. Across all visit types, the intervention group also had a higher volume, but lower show rate than the comparison group (74% versus 84%). These data suggest that the intervention group had a lower participation rate in the recommended intervention services; however, with the high volume of average intervention group visits, an average of 25 per participant over 12 months across visit types, a lower show rate might be expected among this group.

Endpoint Analyses

For those who completed a 12-month assessment, when controlling for baseline measures and other covariates, intervention participants had significantly greater improvements in behavioral health measures than comparison participants (see Table 2). While possible effect modification was explored, no significant interaction terms were detected.

Table 2. Average Differences in Health Outcome Measures between Intervention and Comparison Participants at 12 Months

Health Outcome Measure	Difference for Intervention Participants Compared to Comparison Participants, Mean difference (SE)a	P
PHQ-9^b	-0.81 (0.43)	0.06
Body Mass Index^c	0.03 (0.19)	0.87
Duke Gwneral Health^d	4.01 (1.64)	0.04
GAD-7^e	-0.79 (0.37)	0.03
CAGE-AID^f	-0.006 (0.06)	0.33
Systolic Blood Pressur^g	-0.71 (1.48)	0.63
Diastolic Blood Pressure^h	-0.60 (1.02)	0.56
HbA1c^i	-0.09 (0.18)	0.60
Male Waist Circumference^j	-0.31 (0.71)	0.66
Female Waist Circumference^k	0.04 (0.58)	0.94

Note: Blood denotes statistical siginificance p<0.05^a all results adjusted for age and sex except for waist circumference which does not adjust for sex due to stratification^b additional adjust for language, smoking status ,baseline PHQ-9, Duke General Health and GAD-7 score and baseline BMI^c additional adjustment for language, baseline BMI, and number of comorbidites at baseline^d additional adjustmet for baseline Duke General Health and PHQ-9 scores, and baseline BMI^e additional adjustment for baseline GAD-7 and Duke General Health scores, and baseline BMI^f additional adjustment for alcohol use, baseline CAGE- AID score, and number of comorbidities at baseline^g additional adjustment for marital status and base line blood pressure^h additional adjustment for baseline diastolic blood pressure i a ditional adjustment for alcohol use and baseline HbA1c^j additional adjustment for language, marital status, and baseline waist circumference^k additional adjustment for marital status employment status, and baseline waist circumference

On average, intervention participants had a Duke General Health score 4.01 points higher than comparison participants at 12 months. Intervention participants also had an average GAD-7 score 0.79 points lower than those in the comparison group at the end of the study.

Longitudinal Analyses

There were also significant improvements over time for quality of life and anxiety symptoms as well as depressive symptoms among intervention participants compared with comparison participants (see Table 3).

Table 3: Average Differences in Health Outcome Measures between Intervention and Comparison Participants Over Study Period

Health Outcome Measure^a	Comparison Group Average Strating Point	Intervention Average Starting Point	Average Change in Comparison Group	Average Change in the Intervention Group
PHQ-9^b	4.41	6.67	-1.76	-3.51
Duke General Health^b	74.63	67.79	5.11	10.45
GAD-7^b	4.2	6.18	-1.78	-3.36

all results include terms fro study group,time, and interaction between study group and time^b statistically significant p<0.05

On average, the intervention group started the study with higher PHQ-9 and GAD-7 scores and a lower Duke General Health score than the comparison group, indicating poorer health at baseline. However, while both groups saw improvements over time, on average, intervention participants' PHQ-9 and GAD-7 scores decreased at about two times the rate of the comparison group over time, indicating greater improvement over time. For Duke General Health, the intervention participants' scores increased at twice the rate of the comparison group, also indicating greater improvements in health over time. A graphic approach clearly shows improvement in both groups' PHQ-9 scores, the study's confirmatory outcome (see Figure 4).

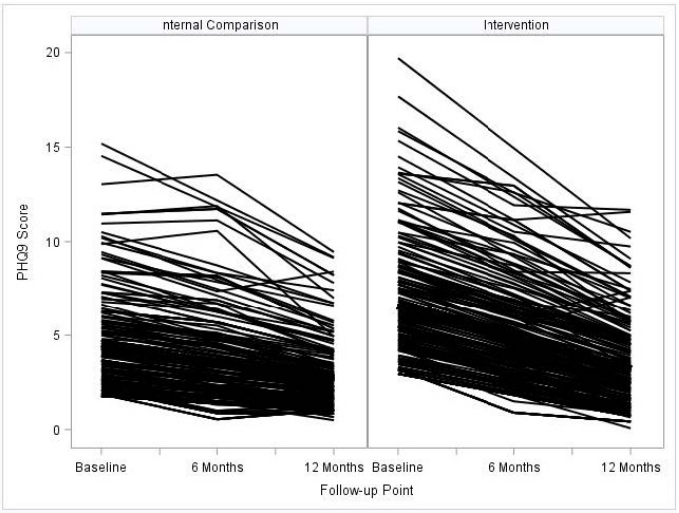

Figure 4: Individual Patient Trajectories of PHQ-9 Score Across Twelve Month Study Period for Intervention and Comparison Groups

Implementation Evaluation

Surveys revealed high satisfaction with the program among staff and patients. Patients had a high level of engagement with services and reported the services they received were "complete", meaning these services addressed patient physical, behavioral, and spiritual needs in one setting. Furthermore, patients reported high satisfaction because services increased their health knowledge and led to real and perceived improvements in health, such as weight loss and improved perceived quality of life.

Implementation barriers included layout of the clinic space, general space limitations, and difficulties in finding qualified applicants for specific staff roles. For patients, the cost of

services and transportation to services were often challenges. An additional barrier was the socio-political environment which heightened anxiety levels of people in the region in general and may have discouraged patients from receiving services at the clinic.

Discussion

This research study is among the first to examine the effectiveness of integrated services offering spiritual behavioral health counseling in a small safety net clinic serving one of the most marginalized populations in the country. The study protocol was implemented with strong fidelity which yielded a high participant retention rate and participant satisfaction with the program. Intervention participants experienced improved depression and anxiety symptoms as well as improved perceived quality of life.

Factors that led to strong implementation fidelity included staff training and commitment to the program. Fourteen staff were assigned to the project and participated in its success, including additional staff who were recruited and funded by matching grant funds. Facilitators of program implementation included communication among staff, staff experience with using an electronic medical record, moving offices to facilitate communication among medical and behavioral health staff, hiring personnel for specific roles supporting integrated services, leadership and staff buy-in to the program, and clinic workflow adjustments to ensure patient needs for services could be met. For patients, participation facilitators included low cost of services, clinic staff flexibility to meet their needs, strong rapport between patients and staff, and support for patient transportation services.

Methodist Healthcare Ministries and HRiA provided support for this four-year project through a variety of learning opportunities such as in-person meetings, phone calls, emails, webinars, and other online communications. Meetings were held in various South Texas locations for learning, collaboration, and support for all subgrantees. With these resources and encouragement, this small clinic was able to demonstrate statistically significant improvement in two behavioral health outcomes after 12 months for those in the intervention group.

Mercy's Sí Three project expanded clinic efforts to integrate more fully the behavioral health and physical health initiatives within the primary care setting, while enhancing overall integration through the innovative addition of faith-based behavioral health services. At the beginning of the initiative, Mercy was between a Level 3 & 4 (co-located) of integration and moved to a Level 5 (fully integrated) by the end of the initiative [21]. Strategies to achieve this greater level of integration included more face to face interactions, closer communication, and collaboration as members of a health care team. Efforts were made to improve shared space between primary care and behavioral health, increase frequent communication between primary care and behavioral health and improve understanding of roles and integrated behavioral health culture.

Limitations

There is the potential for selection bias as the intervention participants self-selected to participate in the program. Comparison group participants may have chosen not to participate due to limitations in their schedule or perceived lack of need for services. Although participant retention rates were strong in both the intervention and comparison groups, these rates may not have reached sufficient power to detect differences in the two groups on additional impact measures.

Generalizability

This study examined the effectiveness of the Sí Three intervention as a whole and was not designed to evaluate the effectiveness of each specific component of the intervention. Mercy created this approach to meet the needs of its clinic patients. Future research could examine the extent to which other specific populations would benefit from a highly tailored integrated behavioral health model. This study demonstrated that patients preferred the spiritual behavioral health treatment approach. Other researchers may wish to examine whether faith-based or spiritual behavioral health counseling is more effective than traditional behavioral health counseling among their populations.

Conclusion

The success of this program required considerable courage and learning on the part of everyone at Mercy. Research rigor was required by the Federal guidelines, and a great deal of time and effort went into planning all the details. The entire process is detailed in Mercy's final report to the CNCS [22]. Mercy now offers the Sí Three program to all adult patients with ongoing monitoring for quality assurance. Financial resources to maintain the integrated program for all patients continues to be a top priority for the clinic, and news of Mercy Clinic's successful integration of health care services has prompted enthusiastic support from the greater community.

Acknowledgements

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References

[1] U.S. Census Bureau. 2018. Quick facts Webb County Texas 2018. Washington, DC. http://factfinder.census.gov/. [Access date: May 20, 2019].

[2] U.S. Census Bureau. 2013. 2013 American Community Survey 5-Year Estimates. Washington, DC. http://factfinder.census.gov/. [Access date: May 20, 2019].

[3] University of Wisconsin Population Health Institute. 2015. County Health Rankings 2015. Madison, WI. http://www.countyhealthrankings.org/sites/default/files/state/downloads/2015 County Health Rankings Texas Data - v1_0.xls. [Access date: June 26, 2015].

[4] Druss BG, Rohrbaugh RM, Levinson CM, & Rosenheck RA.et al. Integrated medical care for patients with serious psychiatric illness: a randomized trial. Arch Gen Psych. 2001; 58(9): 861-8. http://www.ncbi.nlm.nih.gov/pubmed/11545670.

[5] Bedoya CA, Traeger L, Trinh NHT, Chang TE, Brill CD, Hails K, et al. Impact of a culturally focused psychiatric consultation on depressive symptoms among Latinos in primary care. Psychiatric Services. 2014; 65(10): 1256–1262. http://doi.org/10.1176/appi.ps.201300088.

[6] Camacho Á, Gonzalez P, Castaneda SF, Simmons A, Buelna C, Lemus H & Talavera GA. Improvement in depressive symptoms among Hispanic/Latinos receiving a culturally tailored IMPACT and problem-solving intervention in a community health center. Community Mental Health Journal. 2015; 51(4):385–92.

[7] Ell K, Katon W, Cabassa LJ, Xie B, Lee P-J, Kapetanovic S, & Guterman J. Depression and diabetes among low-income Hispanics: design elements of a socioculturally adapted collaborative care model randomized controlled trial. International Journal of Psychiatry in Medicine. 2009; 39(2):113. http://doi.org/10.2190/PM.39.2.a.

[8] Centers for Disease Control (CDC). 2010. Guide to Community Preventive Services. Improving mental health and addressing mental illness: collaborative care for the management of depressive disorders. Atlanta, GA. http://www.thecommunityguide.org/mentalhealth/collab-care.html. [Access date: June 12, 2015].

[9] Daaleman, TP, Frey, B B, Wallace D, & Studenski S A. Spirituality Index of Well-Being Scale: development and testing of a new measure. The Journal of Family Practice. 2002; 51(11), 952. Retrieved from http://utsa.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMw1V3JTsMwELUKSIgLYg2r5BMXlCqJ3cZG4lCxqIhdLRK3yrEd1ANlS_-f8dakID6AU5WmaRv7zZqZNwiRrJ3EP3QCK6lgHUEVzXRadFQpwDQJkmQSTJLsqDCawHLYtFqh2usHr80_3_jB-xgC_qnzry0ZonEITY4uLrTNHkhTQ0x6oWFqVmZeGcYNVwQtzKjx41.

[10] Worthington EL, Hook JN, Davis DE & McDaniel MA. Religion and spirituality. J Clin Psych. 2011; 67(2): 204-14. http://doi.org/10.1002/jclp.20760.

[11] Koenig, H G. Religion, Spirituality, and Health: The Research and Clinical Implications. 2012. http://uq5sd9vt7m.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info%3Aofi%2Fenc%3AUTF-8&rfr_id=info:sid/summon.serialssolutions.com&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft.atitle=Religion%2C+spirituality%2C+and+health%3A . [Access date: June 26, 2015].

[12] American Diabetes Association. 2014. Standards of Medical Care in Diabetes 2014. Diabetes Care, 37 Suppl 1, S14–80. Arlington, VA. http://www.diabetes.org.

[13] American Heart Association. 2015. Understanding Blood Pressure Readings. Dallas, TX. http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Understanding-Blood-Pressure-Readings_UCM_301764_Article.jsp [Access date: July 22, 2015].

[14] Agency for Healthcare Research and Quality (AHRQ). 2014. National Guideline Clearinghouse. Obesity: Identification, Assessment and Management of Overweight and Obesity in Children, Young people and Adults. Rockville MD. http://www.guideline.gov/content.aspx?id=48872&search=waist+circumference.

[15] Kroenke K & Spitzer RL. The PHQ-9: A New Depression Diagnostic and Severity Measure. Psychiatric Annals. 2002; 32(9): 509–515. http://doi.org/10.3928/0048-5713-20020901-06.

[16] Sadock B & Sadock V. Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry.10th edition. Philadelphia, PA: Lippincott, Williams & Wilkins; 2007.

[17] Brown R L & Rounds L A. Conjoint screening questionnaires for alcohol and other drug abuse: criterion validity in a primary care practice. Wisconsin Medical Journal. 1995; 94(3): 135–40.

[18] Centers for Disease Control (CDC). 2011. Health Related Quality of Life. Atlanta, GA. http://www.cdc.gov/hrqol/concept.htm [Access date:July 22, 2015].

[19] Gilbody S, Bower P, Fletcher J, Richards D & Sutton AJ. Collaborative care for depression: a cumulative meta-analysis and review of longer-term outcomes. Archives of Internal Medicine. 2006; 166(21): 2314–21. http://doi.org/10.1001/archinte.166.21.2314.

[20] Fitzmaurice G M, Laird N M & Ware J H. Applied longitudinal analysis. Hoboken, NJ: Wiley-Interscience; 2004.

[21] Heath B, Wise Romero R & Reynolds K. 2013. A Standard Framework for Levels of Integrated Healthcare. Washington, DC. http://www.integration.samhsa.gov/integrated-care-models/A_Standard_Framework_for_Levels_of_Integrated_Healthcare.pdf.

[22] Corporation for National and Community Service, Office of Research and Evaluation. 2019.

[23] Social Innovation Fund Evaluation Report Mercy Ministries of Laredo: Si Three Integration of 3-D Health Services. Washington, DC. https://www.nationalservice.gov/impact-our-nation/evidence-exchange/mercy-ministries-laredo-s%C3%AD-three-integration-3-d-health-services.