Evaluation of Recruitment of Older Adults of Color into a Community-Based Chronic Disease Self-Management Wellness Pathway Program in Los Angeles County

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Background: Established relationships between researchers, stakeholders and potential participants are integral for recruitment of potential older adult participants and Evidence-Based Programs (EBPs) for chronic disease management have empirically been shown to help improve health and maintain healthy and active lives. To accelerate recruitment in EBPs and potential future research, we propose a Wellness Pathway allowing for delivery within multipurpose senior centers (MPCs) linked with medical facilities among lower-income urban older adults. The study aims were to: 1) assess the effectiveness of three MPC-delivered EBPs on disease management skills, health outcomes, and self-efficacy; and 2) assess the feasibility of the proposed Wellness Pathway for lower-income urban-dwelling older adults of color.

Methods: We administered surveys and conducted a pre-post analysis among participants enrolled in any 1 of 3 MPC-based EBPs (n=53). To assess feasibility of the pathway, we analyzed survey data and interviews (EBP participants, MPC staff, physicians, n=10).

Results: EBP participation was associated with greater disease management skills (increased time spent stretching and aerobic activity) but not improvements in self-efficacy or other health outcomes. Interviews revealed: 1) older adults valued EBPs and felt the Wellness Pathway feasible; 2) staff felt it feasible given adequate growth management; 3) physicians felt it feasible provided adequate medical facility integration.

Conclusion: MPC-based EBPs were associated with improvements in disease management skills among older adults; a proposed Wellness Pathway shows early evidence of feasibility and warrants further investigation. Future efforts to implement this model of recruiting older adults of color into EBPs should address barriers for implementation and sustainability. *Ethn Dis*. 2020;30(Suppl 2): 735-744; doi:10.18865/ed.30.S2.735

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Introduction

In the United States, chronic disease accounts for roughly two-thirds of all health care expenditures.[1,2] Moreover, it is estimated that 80% of older adults (aged ≥65 years) have at least one chronic disease,[1] and 68.4% of older adults on Medicare have two or more.[3] One approach to improving health for patients with chronic disease is recruiting older adults to participate in Evidence-Based Programs (EBPs) for chronic disease self-management that focus on education and providing patient-centered tools to improve self-management.[4,5] Some EBPs empirically demonstrate increases in self-efficacy and improvements in health outcomes such as quality of life, while also providing a cost savings by preventing hospitalizations.[4,6,7] The Center for Disease Control funded the Healthy Aging Network to translate effective healthy aging interventions, such as EBPs, into sustainable community-based programs.[6,8-12] Despite some success, to date only a small frac-

tion of older adults take advantage of these programs,[13-15] and under-resourced and older adults of color are less likely to have access to EBPs.[8]

At the same time, there is a need to improve recruitment of an increasingly diverse older adult population into health research. To do so, relationships must be created between researchers and community-based organizations and potential participants,[16] as well as the establishment of trust between community members, researchers and institutions where research is conducted.[17] With a goal of increasing recruitment of older adults of color to EBPs, we proposed a Wellness Pathway that would link multipurpose senior centers (MPCs) with nearby health clinics. MPCs have unique access to engage older adults given their accessibility, affordability and familiarity but are not optimally integrated into health care delivery systems. Additionally, health care providers infrequently refer their patients to MPCs despite their unique access to older adults. In this bi-directional model, health care providers refer their patients with chronic disease to a MPC to participate in an EBP; meanwhile, MPC staff can refer their older adult clients participating in EBPs to a nearby provider. Additionally, established relationships between MPCs and health care providers may facilitate increased recruitment into additional future research. The aim of our current study was two-fold: 1) measure the effectiveness of MPC-delivered EBPs on disease management skills, health outcomes, and self-efficacy; 2) assess the feasibility of implementation and sustainability of the proposed Wellness Pathway in recruiting older adults of color into EBPs.

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Methods

Study Design

This study utilized an adapted effectiveness-implementation hybrid (Type 1) or mix-method research design.[18] Mix-methods research designs are well-structured to measure the effectiveness of interventions while at the same time assessing feasibility of intervention delivery.[18,19] To test the effectiveness of the EBP to improve disease management skills, health outcomes and self-efficacy, we administered surveys and conducted a pre-post analysis among MPC participants (n=53) enrolled in any 1 of 3 different MPC-based EBPs. To assess feasibility of the proposed Wellness Pathway for recruiting older adults of color into EBPs, we surveyed EBP participants and conducted in-person semi-structured interviews with stakeholders (older adult participants, MPC staff and physicians at nearby medical facilities, n=10) with data collection occurring during January-May 2015. The research was approved by the UCLA Institutional Review Board, all procedures were in accordance with the ethical standards of the IRB and the Helsinki Declaration of 1975, as revised in 2000.

Setting, Recruitment and Intervention

St. Barnabas Senior Services (SBSS) is a nonprofit community-based organization that has provided more than 100 years of service to older adults. SBSS is a community focal point for senior services in one of the most ethnically diverse communities in Los Angeles, serving older adults who are 35% Asian, 33% Latino, 25% White, 6% African/American, 1% Other. The Asian and Latino older adult population in Los Angeles is expected to nearly double by 2035[20] and has significant racial/ethnic differences in chronic disease prevalence. Arthritis is highest among the older adult African Americans (45%) and Latinos have diabetes at nearly double the rate (25%) of Whites. African American (52%) and Latino older adults (62%) are also more likely to be hypertensive compared with Whites and Asians.[20]

SBSS staff recruited older adults to participate in the EBPs who met the two study inclusion criteria. They were eligible if aged ≥50 years and received services from the MPC and had either diabetes or arthritis that corresponded with EBPs. The EBPs

offered at the site were: a) Diabetes, Chronic Disease Self-Managements Program (CDSMP)[21]; b) Diabetes, *Tomando Control de Su Salud*, the Spanish version of CDSMP[22,23]; or c) Arthritis Foundation Exercise Program.[12,24] Trained and certified instructors (SBSS staff) led the classes. Each EBP consisted of weekly 2-2.5-hour group classes for a total of 6 weeks. The Chronic Disease Self-Management Programs in English (CDSMP), and Spanish (*Tomando Control),* are a series of health education classes designed by researchers at Stanford University. CDSMP is based in social cognitive theory and addresses topics such as exercise and activities for maintaining and improving strength, flexibility and education.[21] The curriculum includes individual goal-setting and group problem-solving and teaches self-management techniques to manage fatigue, pain, isolation, nutrition, medication management and treatment evaluation. The Arthritis Foundation Exercise Program[18,25] also incorporates social cognitive components such as socialization games and relaxation techniques to address issues often faced by persons with arthritis including pain, inactivity, fatigue, depression, and social isolation. Arthritis classes include low-impact physical activities focused on endurance-building, and balance exercises to maintain or improve mobility, build muscle strength, and maintain functional ability. Support for the EBPs was from private donations, foundation grants and designated Area Agency on Aging Funds. Each participant received a $25 gift card for participating.

Data Collection/Measures

Aim 1: Effectiveness of the EBPs

Each participant was given a self-administered survey prior to the first day and at the end of the last EBP class. English and Spanish baseline surveys included questions about sociodemographic characteristics (age, sex, race, education level) and self-reported current health conditions (diabetes, depression, asthma, COPD, heart disease, high blood pressure, arthritis, cancer).

Analysis of the EBPs was combined for this article because of their similar relationship to the Wellness Pathway, ie, the pathway was about the EBP to improve health outcomes, not specific features of a particular EBP. In all EBPs, disease management skills were assessed using instruments measuring time spent doing stretching and strengthening exercises and aerobic exercises.[7] For those participating in the CDSMP and *Tomando Control*, we additionally measured changes in effective patient-physician communication strategies using the Communication with Physicians Scale.[7] We explored pre-post change in the health outcomes via pain severity ratings. The Stanford Patient Education Research Center's Pain Severity scale[21,26] was used to measure pain severity or discomfort in all three EBPs. Among those participating in CDSMP and *Tomando Control*, pre- and post-changes in activities of daily living (ADL) and instrumental activities of daily living (IADLs)[27] were also measured, while among those participating in the Arthritis EBP, level of activity restriction[28] and falls were measured using previously tested instruments.[29] In all groups, self-efficacy was measured at both time-points using the Self-Efficacy for Managing Chronic Disease 6-item scale.[30]

Aim 2: Wellness Pathway Feasibility

To help inform Aim 2, we included questions within the baseline survey that gauge feasibility of a proposed Wellness Pathway to facilitate recruitment of older adults of color into EBPs. These items were created for this study, and queried self-reported health care utilization, primary care receipt location preferences, and preferred hospital. Acceptability of referral to a Wellness Pathway was measured using a previously tested instrument.[25]

Stakeholder Interviews

Two MPC staff serving as study team members identified appropriate staff, older adults and physicians for the stakeholder interviews. Older adults who participated in one of the three EBPs (n=3) were interviewed to assess the value of the EBP attended and the acceptability to the Wellness Pathway. Staff (n=4) and physicians (n=3) were interviewed to investigate the implementation and sustainability of the Wellness Pathway as a means for recruiting older adults of color into EBPs. Physicians were asked their overall perception of the EBP, willingness to participate in a Wellness Pathway, and how they might incorporate patient referrals into their practice. Each interview was approximately 1-hr in length and each participant received a $50 gift card for their participation.

Data Analysis

We performed simple descriptive analysis of sociodemographic characteristics of study participants in each of the 3 EBPs. Pre-post outcome measures (disease management skills, health outcomes and self-efficacy) were pooled among all three EBPs whenever possible (ie, when the same instrument was used in all 3 EBPs). Pairwise within subject t-tests were performed to detect pre-post differences in the primary outcome measures. A research assistant specializing in qualitative research conducted, transcribed and analyzed stakeholder interviews using content analysis methods.[19,31] The content analysis was guided *a priori* by the aims of the study. Subsamples of participants' transcripts were coded independently (older adult participants, staff, and physicians) allowing for focus on the data and themes one group at a time. The text was then systematically classified into categories or themes.[31]

Results

Of the 56 older adult participants screened, enrolled and completed informed consent, 53 completed the class and the post-assessment: 21 in the Arthritis Foundation Exercise Program, 20 in CDSMP, and 12 in *Tomando Control* (Table 1). Mean age for all participants (n=53) was 74 years and 81.1% were female. A little more than half (50.9%) identified as Latino or of Hispanic origin and 37.7% as Asian; just under half had less than a high school diploma (43.4%).

Exercise behavior, namely stretching and aerobic exercise/activity, increased at the 6-week follow-up compared with baseline within participants of all three EBP groups. Participants spent more time stretching (baseline 64.4 mins vs post: 83.8 mins). On average since baseline, participants stretched 20 minutes more a day (t(52)=-2.23, P=.03). Additionally, participants spent more time engaged in aerobic activity, 41-minute increase a day (t(50)=-2.44, P<.02). There was no change in the disease management skill of

Table 1. Demographic and health-related characteristics of overall participants, N=53 by program type

Characteristic	EBP Groups							
	CDSMP		*Tomando Control*		Arthritis Foundation		Combined	
	n=20		n=12		n=21		N=53	
Mean age ± SD	76.1 ± 7.7		70.1 ± 8.5		74.2 ± 7.4		74.0 ± 7.9	
Sex	n	%	n	%	n	%	n	%
Male	6	30	4	33	-	0	10	19
Female	14	70	8	67	21	100	43	81
Race/ethnicity								
Latino or Hispanic origin	15	75	12	100	-	0	27	51
White	1	5	-	0	-	0	1	2
Black or African American	1	5	-	0	-	0	1	2
Asian	1	5	-	0	19	90	20	38
Native Hawaiian or Other Pacific Islander	1	5	-	0	1	5	2	4
Other	1	5	-	0	1	5	2	4
Education								
Less than high school diploma	12	60	7	58	4	19	23	43
High school diploma or GED	2	10	1	8	2	10	5	9
Vocational school or some college	3	15	3	25	3	14	9	17
4-year college degree	2	10	1	8	9	43	12	23
More than 4 year (eg, graduate)	1	5	-	0	3	14	4	8
Chronic diseases								
Mean count of comorbid diseases ± SD	1.85 ± 1.23		1.58 ± 1.38		1.62 ± 1.12		1.70 ± 1.20	

SD, standard deviation.

Table 2. Effect size and mean (standard deviation) of pre- and post-test scores for primary outcomes of interest for all three EBP participants

Disease Management	N	Pre-Intervention	Post-Intervention	Mean difference	P
Exercise behaviors					
Time spent on stretching, mins	53	63.4 (59.5)	83.8 (67.5)	20.4	.03[a]
Time spent on aerobic activity, mins	51	111.8 (109)	153.2 (115)	41.5	.02 [a]
Communication with doctor score	32	2.9 (1.4)	3.1 (1.3)	.2	.50
Health outcome					
Pain severity score	53	47.9 (24.7)	45.9 (25.7)	-2.0	.52
ADLS & IADLS	32	2.0 (3.1)	1.9 (3.2)	-.2	.72
Unintentional falls and restricted activities, n(%)	22	6 (27)	5 (24)	1	.12
Self-efficacy					
Self-efficacy score	53	7.9 (1.9)	8.1 (1.4)	.2	.53

a. Paired t-test, P<.05.
Data are mean (SD) unless identified otherwise.
ADLS, activities of daily living; IADLS, instrumental activities of daily living.

communication with doctors. There were also no changes in health outcomes nor self-efficacy scores in any of the three EBPs (Table 2).

Health care utilization survey data revealed that 78% of participants reported having a regular primary care provider, 10.9% received their care as needed (but without a regular provider) from a community clinic or health center, and 5.5% received their care elsewhere. Proximity to home (43%) was the most frequently cited indicator for choosing a particular primary health provider, followed by accessibility to viable transportation (33%).

Stakeholder Interviews

Analysis of the 3 groups interviewed were guided *a priori* by Aim 2 of the study, namely feasibility of the Wellness Pathway. Thus overarching themes included: benefit of MPC-delivered EBPs, and Wellness Pathway feasibility, implementation and sustainability. There was strong consensus across all stakeholders that EBPs were beneficial. As described below, older adults identified potential barriers to the EBPs success in the MPCs, MPC staff focused on need for sufficient personnel and growth management, while physicians focused on need for patient access to EBPs, and challenges of implementation and sustainability.

EBPs for Chronic Disease Management:

Older adult participants agreed that the EBP was beneficial for them and the older adult population in general. They enjoyed and appreciated the opportunity to make healthy eating and fitness goals a reality. The benefits transcended physical health, '*It helps you feel better mentally, eating properly helps you feel better all the way around.*' [Older Adult 1]. They also enjoyed the social aspect of the classes, including making friends and having common topics to discuss. They appreciated the program because it was offered at no cost, which was a priority for those on a fixed income. SBSS staff enthusiastically agreed that chronic disease self-management was valuable and beneficial for the older adult population:

> '*It's brilliant! … it's so obvious…it's the missing piece in the continuum of care for vulnerable populations*' [SBSS Staff 3]

All physicians welcomed community-based EBPs as a mechanism for increasing access for older adults of color to health promotion, pointing out that an overwhelming number of their patients lacked

Table 3. Barriers and facilitators to the Wellness Pathway

	Barriers	Facilitators
MPC Staff	Insufficient staffing capacity	MPC organizational growth management
	Staff confidence in physician referrals	Formal referral process or 'physician vetting system'
Physicians	Language barriers	Linguistically appropriate EBPs
	Cost burden	EBPs offered free of cost
	Insufficient time with patients	EBPs available in community
	Transportation challenges	EBPs available in community
	Referral system challenges	Heath care provider and health care system 'buy-in'
	Patient referral uptake	Patient referral and participation 'feed-back system' via electronic medical records (EMR) integration
Older Adult EBP Participants	Low/fixed-income older adults	EBPs offered free of cost
	EBPs with non-older adults	EBP older adult participants (tailored for population-specific needs)

the assistance necessary to manage their chronic disease(s). They believed their patients benefited from education on nutrition but also the psycho-social benefits such as higher levels of motivation and empowerment, and lower levels of isolation and stigma. Physicians shared their struggles regarding patient chronic disease management, noting language barriers as their primary challenge. Though professional interpreter services were available, these were time consuming and not highly effective. Written materials available were linguistically appropriate, but physicians reported that low literacy levels and limited vision constrained their impact among their older adult patients. These challenges were further exacerbated by lack of sufficient time per patient in clinic. Physicians reported that their hospital-based chronic disease programs were not highly attended due to challenges such as lack of transportation and cost burden. Physicians surmised that patients viewed these classes as "unnecessary" considering the time and effort needed to attend. Due to these accessibility challenges, wellness center events suffered low attendance rates. Physicians felt patients may be more likely to attend EBP in the community than at the hospital. Low attendance rates created a cyclical effect where any scheduled classes that might have been attended were then cancelled, leaving physicians with few options.

> '*Our only option is really to have them come back for a sooner visit…this isn't efficient…*' [Physician 3]

Physicians understood the benefits chronic disease self-management classes could provide. All believed that by addressing accessibility issues with EBP offered through SBSS and in their patient's communities, there may be higher levels of attendance.

Wellness Pathway Feasibility

The implementation of a bi-directional referral pathway between health care providers and SBSS was seen as complex but feasible. When asked to imagine receiving a physician referral for an EBP at an MPC, older adults considered attending; however, they anticipated psychological barriers associated with visiting an unfamiliar location (Table 3).

> *'…it's a new place, it's unfamiliar, it's stressful and confusing when seniors have to go somewhere new' [Older Adult 1]*

Other barriers included transportation difficulties, including financial constraints for bus fare or parking costs and/or limited care-giver transportation. Alternatively, participants noted these barriers may be alleviated if the EBP catered to older adult needs.

> *'They talk slower…If there are young people [in the EBP] there they might feel… overlooked. They need to know they will get attention and their questions answered' [Older Adult 3]*

The older adults interviewed indicated they would consider a referral

from the MPC to a physician; however (as reported above), most already had primary care providers and expressed reluctance to make a change.

Staff at SBSS agreed that the Wellness Pathway was a feasible mechanism for improving access to EBPs for older adults of color, and provided a collaborative and well-formulated plan with sufficient resources was in place. In regard to implementation and sustainability of physician-referred older adults, one physician noted the importance of physician stakeholder engagement and suggested in-services for physicians to cultivate this engagement. Meanwhile, staff focused on the need for funding, dedicated personnel and management of organizational growth. In terms of referring an older adult to a physician, direct staff stressed the need to know if referral was linguistically appropriate and confidence in their bedside manner. The SBSS management staff echoed direct staff including the recommendation for a formal and periodically updated '*physician vetting system*' [SBSS Staff 4].

Physicians believed that EBPs offered through an MPC within the patient's community would potentially alleviate accessibility issues. Though the benefits of and the need for patient access to EBPs is evident, the implementation of a bi-directional referral pathway between health care providers and a MPC was seen as complex. The physicians believed a referral pathway with an MPC was feasible however and shared their thoughts on the step-by-step components of a successful referral process. First, educating and receiving '*buy-in*' from the health care provider system would be necessary. Second, their top priority was streamlining the process by utilizing their existing electronic medical records system. Finally, they stressed the need for a '*feed-back system,*' to track patient referral and participation.

Discussion

These three 3 EBPs for chronic disease management were associated with improvements in some disease management skills (stretching and aerobic activity) in pre-post analyses. Participation in EBPs was not associated with improvements in other health outcomes or self-efficacy.

Improvements in exercise behavior as a disease management skill corroborates with previous studies in Latino populations that found that CDSMP and *Tomando Control* increased exercise activity after attending EBP classes.[7,22,23] In contrast, communication with physicians as a disease management skill was not found to change. Given the short 6-week duration of the class, it is possible that the participants did not have an opportunity or need to communicate with their health care provider.

Pain measures as a health outcome did not change after exposure to the EBP intervention. There was a slight though not statistically significant decrease in scores for ADL's, IADL's, falls and restricted activities as health outcomes in the three EBPs. Though previous research studies have found improvement in such measures among chronic disease self-management program evaluations, post-test often included a longer post-test evaluation period such as 6 months[4,5] and/or 1 year.[4,21] A more significant change in health outcome measures may have been captured with a longer test period or with a larger sample size.

There were slight, but not significant, increases in self-efficacy in participants of all three EBPs. Baseline self-efficacy measures in all three groups were found to be at 7.9 out 10 scale. By comparison to other studies, participants in this study had higher self-efficacy scores at baseline[21,23]; thus we may have observed a ceiling effect in our population that made it more difficult to induce improvement. Again, one possibility is that with a longer test period or with a larger sample size, differences may have been captured. Further investigation is warranted as with few

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exceptions,[5,21,23] this population has historically not been studied, particularly those who are urban-dwelling.

Integration of medical, behavioral and social health are becoming increasingly needed in order to coordinate care, particularly among high risk populations.[32] Linking MPCs with health care providers offers an opportunity for MPCs to refer their older adult client population to local health care providers who may play a critical role in improving their health. Though older adults interviewed indicated they already had primary care providers and were reluctant to make a change, 10.9% of those surveyed indicated receiving the care they needed, but without a regular provider. Perhaps those without regular primary providers might be more inclined to follow-up on an MPC-made physician referral. Nearly half indicated the importance of location as a deciding factor, therefore an MPC must keep this factor in mind, along with accessibility factors, such as cost or language, that might discourage older adults of color from receiving health care at an MPC.

We found satisfaction levels high despite a lack of improvement in health outcomes. Given this gap between participant satisfaction and realized change in measured outcomes, it is possible that we are not measuring the "correct" outcomes to capture the full benefits of these programs. Future studies should consider downstream benefits including benefits of increased socialization as well as benefit to the MPC of increased popularity with the community. The Wellness Pathway appears feasible as a mechanism for increasing recruitment of older adults of color into EBPs, but future efforts to scale up the program will need to address several critical issues.

In terms of implementation, the referral process for physicians must involve physician stakeholder engagement as well as buy-in from clinical health system staff, be streamlined and ideally incorporate a patient referral tracking mechanism. Further, MPCs will require growth management in anticipation of an increased number EBP participants (Table 3). Implementation planning must also plan for potential referral uptake barriers for older adults such as lack of transportation and familiarity with the MPC. Ultimately, decreased language and transportation barriers may help increase attendance, but will not be enough to successfully increase enrollment unless older adults believe the class is of value. Efforts must be made – perhaps by internal champions who have completed the classes and found them valuable – to convince older adults of color that the classes are worthwhile.

Conclusion

As the older adult population grows increasingly diverse, there is a need to address their health and well-being. Given the widespread agreement that the reach of EBPs needs to be expanded to better serve older adults of color, policymakers should consider the Wellness Pathway as a mechanism for recruiting. Further, this referral pathway, which links researchers, community-based organizations, and potential participants, may additionally facilitate establishing relationships that may increase access to both EBPs and recruitment for future health research. One limitation of this study was the low number of African American EBP participants; whether findings would differ in a different community is an area for future investigation. A second limitation was the low number of participants (older adults, staff and physicians) due to cost limitations. Future studies should measure potential downstream benefits including increased socialization and benefit to the MPC, such as increased popularity with the community. Finally, bi-directional referral pathway implementation should focus on accessibility factors for low-income older adults of color, MPC growth management, clinical health system buy-in, integration of a referral system and patient tracking mechanisms.

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Conflict of Interest

No conflicts of interest to report.

Author Contributions

Research concept and design: Reyes, Thorpe, Sarkisian; Acquisition of data: Marshall, Reyes, Trejo, Sarkisian; Data analysis and interpretation: Marshall, Carrillo, Thorpe, Sarkisian; Manuscript draft: Marshall, Carrillo, Trejo, Sarkisian; Statistical expertise: Marshall, Carrillo; Acquisition of funding: Thorpe, Sarkisian; Administrative: Marshall, Carrillo, Reyes, Thorpe, Trejo; Supervision: Sarkisian

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