Preventive Medicine Reports 8 (2017) 101–107

Contents lists available at ScienceDirect

Preventive Medicine Reports

journal homepage: www.elsevier.com/locate/pmedr

Exploring the effects of longstanding academic-community partnerships on study outcomes: A case study

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A B S T R A C T

While sustained academic and community partnerships can improve relationships between research partners, they could also influence study outcomes. Research on this issue is limited.

We conducted a trial (2010–15) to test two implementation strategies for an evidence-based intervention to promote colorectal cancer (CRC) screening at community organizations in Los Angeles ($N = 17$). For both strategies, trained community health advisors (CHAs) recruited Filipino Americans ($N = 673$) who were non-adherent to CRC screening guidelines. The main study outcome was CRC screening status of participants at 6-month follow-up. This case study compares outcomes among organizations that had participated in our prior effectiveness trial and new organizations with which we had no prior relationship. Using multilevel logistic regression with multiple imputation for missing outcomes, we compared CRC screening rates among previous versus new partners controlling for study condition and organizational, CHA and participant characteristics.

Screening rates were substantially higher among participants of previous versus new partner organizations in unadjusted analysis (77% versus 55%, OR 2.8, $p = 0.12$), after adjusting for organization-level variables (81% versus 42%, OR 7.5, 95% CI [2.0–28.7], $p = 0.003$) and after additionally adding CHA and participant level factors to the model (79% versus 47%, OR 5.9, CI [1.3–27.3], $p = 0.02$). Analyses using complete cases and assuming not-screened for missing outcomes indicated similar differences in screening rates (30 and 33 percentage points, respectively).

Study outcomes that are achieved with long-term community partners may not be generalizable to new partners. However, inclusion of new community partners is important for external validity of dissemination efforts in community settings.

NCT01351220 (ClinicalTrials.gov)

1. Introduction

Many studies that promote cancer screening or other health behaviors are conducted in partnership with community organizations and are described as community-based participatory research, community-engaged research or community-partnered research (Israel et al., 2001; Holt et al., 2014; Scarinci et al., 2014). One of the key principles of community-based participatory research is a long-term commitment by all partners (Israel et al., 2001). The exact nature of this partnership varies among studies and is shaped by the setting and the context in which the study takes place; the relationship between academic and community partners; their history, if any, of working together; and the study protocol. The community-based participatory approach is often utilized in research with minority communities that may not be familiar with research, and may be difficult to enroll in a study without the contributions of a community partner they trust (Holt et al., 2014; Ma et al., 2009; Wang et al., 2012). Benefits of this research approach include improved quality and validity of research by incorporating the local knowledge of the people involved, and enhanced relevance and use of the research data by all partners (Israel et al., 2001).

We have conducted two large trials to promote colorectal cancer (CRC) screening in the Filipino American community in Southern California (Maxwell et al., 2010; Maxwell et al., 2016). In both trials, we partnered with a large number of community organizations. In the first trial (CRC1, 2004–2009), we developed a multi-component intervention to promote CRC screening and showed that it was effective in increasing CRC screening among members of community organizations (Maxwell et al., 2010). In the second trial (CRC2, 2010–2015), we tested two strategies – a basic and an enhanced strategy – to promote the implementation of the previously developed intervention by

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http://dx.doi.org/10.1016/j.pmedr.2017.09.003
Received 27 March 2017; Received in revised form 5 September 2017; Accepted 7 September 2017
Available online 12 September 2017

community organizations with the help of trained community health advisors (CHAs). Previous analysis of CRC2 data found that participants reported high screening rates at 6-month follow-up in both arms of the study with no significant difference by implementation strategy (Maxwell et al., 2016).

By design, about half of the organizations that participated in CRC2 had also participated in CRC1 and therefore had a prior relationship with our research group. Presumably, these organizations also had some prior knowledge, capacity and positive values regarding CRC screening and an ongoing commitment to promoting CRC screening in their community. We included them in CRC2 in order to provide ongoing technical and financial support, which is crucial for sustaining health promotion efforts of community organizations (Israel et al., 2006).

While a sustained academic and community partnership can improve the working relationship and trust between research partners, it could potentially influence study outcomes and could have important implications for the generalizability of implementation and dissemination of evidence-based interventions. However, we are not aware of any studies that have examined this issue.

This analysis explores the effect of being a new versus a previous research partner on the main study outcome, CRC screening status of participants at 6-month follow-up. We hypothesized that organizations that had partnered with us in a previous study to promote CRC screening by hosting the intervention and helping with recruiting subjects may be more successful in promoting CRC screening than new partners. Guided by the Consolidated Framework for Implementation Research (CFIR), we also explore the influence of other organizational characteristics, including our other stratification variable, faith-based versus social service organization. In addition, we explore the influence of CHA characteristics (e.g., professional background) on CRC screening of participants, since these characteristics may also play a role (Damschroder et al., 2009). This analysis adds to the literature by examining the potential impact of sustained academic-community partnerships on attempts to implement an evidence-based intervention into community practice.

2. Methods

2.1. Cluster-randomized implementation trial to promote CRC screening through community organizations (CRC2)

In a prior randomized trial in partnership with 45 Filipino American organizations and churches (CRC1), we determined that an intervention that included an educational session on CRC screening, distribution of free fecal occult blood test (FOBT) kits and print materials, referral of uninsured participants to a community clinic that had agreed to evaluate FOBT kits and charge the study, and a reminder to get screened significantly improved CRC screening among Filipino Americans (Maxwell et al., 2010). The current trial (CRC2) tested two strategies (basic and enhanced, see below) for implementing this multi-component intervention at 17 community organizations with the help of trained CHAs. CHAs recruited Filipino Americans between 50 and 75 years of age who were not adherent to CRC screening guidelines. CHAs administered informed consent and a baseline questionnaire and implemented the intervention.

Restricted randomization (Hayes and Moulton, 2009) was used to promote balance on zip code-level mean income and education both across conditions and within each of four cells defined by two stratification variables, new versus previous community partners and faith-based versus social service organization. The study was approved by the University of California Los Angeles Office of the Human Research Protection Program. Additional details and a CONSORT flow diagram of the trial have been reported elsewhere (Maxwell et al., 2016).

2.2. Measures

Based on the CFIR and our research questions, we explored the following baseline variables as predictors of CRC screening among participants at follow-up.

2.3. Organization level variables (CFIR construct "inner setting")

Basic versus *enhanced implementation (study condition):* Organizations and CHAs in each condition received the same amount of training and financial incentives. Organizations that received the enhanced implementation strategy were encouraged to implement additional activities to promote CRC screening among their members, such as celebrating National CRC Awareness Month. They also received three additional site visits in which research staff answered questions and helped to trouble shoot problems with recruitment and intervention implementation. In addition, only leaders of organizations in the enhanced arm participated in workshops and the study's Community Advisory Board.

New versus *previous research partner (stratification variable):* By design, about half of the organizations had been our partners in the effectiveness trial (CRC1) that preceded this implementation trial. Therefore, these sites had been exposed to the importance of CRC screening and the intervention, and they knew the Filipino American project director, who was responsible for day-to-day activities in both CRC1 and CRC2. New organizations were recruited through online sources and a Filipino Consumer Guide.

Faith-based versus *social service organizations (stratification variable):* By design, about half of the organizations were faith-based (Catholic churches) and the remainder were social service organizations such as senior centers or adult day care centers.

Organizational readiness for implementation of the CRC screening promotion program: Readiness for implementation is an important component of the inner setting in the CFIR. It consists of access to information and knowledge, leadership engagement and available resources. Organizational readiness was assessed using a baseline questionnaire that was completed by leaders at each organization, with 9 items that were rated from very low (1) to very high (10). Leaders reported the organization's knowledge and awareness of CRC and CRC screening, engagement in the program (interest in prevention of CRC in the Filipino American community; concern for members at risk for CRC; level of preparedness to promote CRC screening; degree of feeling empowered to promote CRC screening among its members), and available resources for CRC screening related activities. The 9 item instrument was developed for this study, based on the work of Plested and colleagues (Plested et al., 2006), had a Cronbach's alpha of 0.94 and factor analysis identified factors consistent with theoretically meaningful dimensions described above.

Other organizational variables: As additional predictors, we examined the estimated number of Filipino Americans served by each organization; years in operation; and the number of health related activities other than promoting CRC screening that were conducted by the organization in the past 6 months that required some degree of planning (e.g., serving fruits and/or vegetables during events; having classes on healthy nutrition or exercise).

2.4. Community health advisor level variables (CFIR construct "characteristics of those implementing the intervention")

Characteristics of individuals who implement the program may influence outcomes (Damschroder et al., 2009). In addition to demographic variables (gender, age, education), we examined whether or not CHAs had a health care background (e.g., nursing, dentistry) and if they had ever received CRC screening. We also considered how many hours per month they reported that they could devote to promoting CRC screening.