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Preparing for community health worker integration into clinical care teams through an understanding of patient and community health worker readiness and intent

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Abstract

There is a rising demand to expand the successful roles community health workers (CHW) offer into *clinical* settings (cCHW) to support patient services. Using survey data, we evaluated patient and CHW *readiness* and *intent* to adopt cCHW clinical care integration. We found CHW and patient *readiness* to become or utilize a cCHW significantly predicted CHW and patient *intent* to become or utilize a cCHW; however, in our study CHWs experienced greater *readiness* to serve as cCHWs than did patients to utilize cCHWs.

A. Background

Community Health Workers (CHW) function as liaisons between healthcare systems, social services, and the community to facilitate healthcare access and care delivery (American Public Health Association, 2016; Health Resources and Services Administration Bureau of Health Professions, 2007). There are three primary models for utilization of CHWs: 1) CHWs managed through community-based, non-profit organizations; 2) CHWs managed by organizations that function at the intersection between health systems and communities; and 3) CHWs as extensions of hospital systems. The first two approaches reflect traditional CHW roles. The third approach blends these roles, to expand the healthcare system's reach (Singh & Chokshi, 2013). As financing and delivery in public health continues to evolve, there is an opportunity to broaden the clinical care team, allowing expansion of the traditional CHW role into healthcare settings as clinic-based CHWs (cCHW) (Balcazar et al., 2011; Volkmann & Castañares, 2011).

The cCHW, hired by and based out of hospitals or clinic centers, can provide relevant patient connection to inform the development and implementation of an effective patient care plan (Martinez, Ro, Villa, Powell, & Knickman, 2011). Initial cCHW studies demonstrate that cCHWs can provide valuable assistance in integrated behavioral health, team-based care,

panel management, barrier-free access, and customer-driven care (Volkman & Castañares, 2011), with positive effects on patient health outcomes, such as improved chronic care management, increased access to healthcare, and increased compliance with preventive care recommendations (Findley, Matos, Hicks, Chang, & Reich, 2014; Hostetter & Klein, 2015; Kenya et al., 2013; Martinez et al., 2011). Despite these successes, many hospitals and clinics struggle to successfully incorporate cCHWs into their care teams. This is due, in part, to professional team members' fear of cCHW preparedness to correctly act within the boundaries of their role. Because of the growing interest in cCHWs, and in response to these concerns, efforts are underway to implement cCHW training programs and to investigate best practices for cCHW integration into clinical care teams (Community Clinic Inc, 2015; Kapheim & Campbell, 2014; Zahn, Matos, Findley, & Hicks, 2012).

B. Introduction

There is a reliable and valid foundation of evidence-based research demonstrating the effectiveness of CHWs, and the need and opportunity for CHWs to transition into clinical care teams. However, researchers are just beginning to delve into CHW perceptions of their existing roles and their potential to expand capabilities (Allen, Brownstein, Satsangi, & Escoffery, 2016; Jaskiewicz & Tulenko, 2012; Volkman & Castañares, 2011). There is even less evidence of patients' perceptions of CHW and cCHW care (Heisler et al., 2009). This substantial gap in research indicates there is a distinct opportunity to explore CHWs' *readiness* to become cCHWs and patients' *readiness* to utilize cCHWs in their care plan.

The CHW workforce largely recognizes emerging opportunities to work within the healthcare system and is ready to expand their roles and skills to meet higher clinical demands (Allen et al., 2016). Of course, the converse is also true: some CHWs are not ready to transition into clinical care settings. CHWs may experience moderate overall intrinsic and extrinsic job satisfaction, but also experience significant feelings of emotional exhaustion, cynicism, and burnout related to high workloads, stress, and working conditions (Ge, Fu, Chang, & Wang, 2011). Researchers are exploring methods to increase CHW motivation and retention; however, there is a notable lack of research exploring perceptions of *readiness* in CHWs, and a significant lack of research regarding CHW *intent* and preparation to become cCHWs. Within the modest body of literature that currently exists, mixed findings in CHW job satisfaction and cCHW job interest yield great ambiguity at a time where many health systems are ready to welcome cCHWs and need clear guidance to incorporate the change in care provision.

Similarly, information regarding patient perceptions of the use of cCHWs is sparse. This is despite research indicating that patients participating within CHW self-management programs report better ability to manage chronic conditions with greater confidence to ask questions and request necessary tests and results from their providers (Heisler et al., 2009). Although these and other findings of patient successes appear to indicate patients are ready for greater cCHW participation in their care delivery, the larger compendium of research typically fails to question patients' desire to utilize cCHW services. More extensive research is needed to reliably confirm and ensure cCHW resource allocation is appropriate and will be well received by patients.

Recognizing the importance of the CHW-patient relationship in the transition of CHWs to work as cCHWs, the Loma Linda University Promotores Academy at San Manuel Gateway College (Promotores Academy), conducted a training needs assessment, with patients and CHWs, that ultimately informed the development of the Promotores Academy cCHW certificate program. In this paper we use the needs assessment data to compare patient and CHW self-reported *readiness* for cCHW integration into clinical settings, and evaluate the predictive relationship of CHW and patient *readiness* on *intent* to become or utilize a cCHW, respectively.

C. Methods

We performed data analysis on a mixed-methods, cross-sectional evaluation data set inclusive of survey data from patients and CHWs to assess key demographic variables, *readiness* to become or utilize a cCHW, and *intent* to become or utilize a cCHW. The needs assessment study was approved by the Loma Linda University Institutional Review Board (identification number: 5160301).

1. Participants and Setting

Trained researchers collected survey data from 106 patients of two local, low-income serving clinic systems between February and May 2017. Patient participants were recruited via convenience sampling by the collaborating clinics. Researchers, assisted by the Promotores Academy, also collected survey data via a convenience sample from 66 CHWs during November and December 2016. All had experience as a CHW, and were employed or associated with the Promotores Academy. All participants identified as male or female, and were at least 18 years of age.

2. Measurement and Tools

Demographics.—CHWs and patients self-reported gender (male or female), age (in whole years), race/ethnicity (White, Hispanic or Latino, Black or African American, Native American or American Indian, Asian/Pacific Islander, or other), nativity (write-in), United States generation (first, second, third, fourth, or fifth), highest level of schooling completed (some high school, high school or equivalent, some college, trade/technical/vocational, associate degree, bachelor degree, master degree, professional degree, Doctorate degree), highest level of schooling completed in the United States (same options as those that applied to highest level of schooling), marital status (single/never married, married/domestic partnership, widowed, divorced, or separated), and annual household income (less than \$20,000, \$20,000 - \$39,999, \$40,000 - \$59,999, \$60,000 or more).

Readiness.—For the needs assessment, researchers utilized an instrument derived from a valid and reliable readiness for change scale, consisting of 25 total statements, with a six-point Likert-like response scale anchored at *Strongly Disagree* and *Strongly Agree*. Based on previous work by Holt, Armenakis, Field, et al. (2007), the researchers developed questions to evaluate *readiness* through three constructs: *appropriateness* (10 statements; e.g., “There are a number of rational reasons for this change to be made”), *management support* (6 statements; e.g., “The healthcare facility I use has encouraged all patients to

embrace this change”), and *change efficacy* (6 statements; e.g., “When we implement this change, I feel I can handle it with ease”) (Holt, Armenakis, Feild, & Harris, 2007). The readiness for change theory reflects change across all organizational and individual workforce foci.

Intent.—Participants reported *intent* (to become a cCHW or to use a cCHW) through their reply to six statements, using a six-point Likert-like response scale anchored at *Strongly Disagree* and *Strongly Agree* (e.g., “*I intend to enroll in a clinical Community Health Worker education program in the next three to six months*”). The questions were derived from the theory of planned behavior construct *intent* (Ajzen, 1985; Ajzen & Manstead, 2007). The theory of planned behavior served as a supporting framework for the original needs assessment to demonstrate the relationship between the dimensions of *readiness* and the *intent* to act.

3. Data Analysis

We analyzed the survey data with SPSS 25.0 software via descriptive statistics, two-sample independent t-tests, and multiple linear regression (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp).

Calculation of readiness score.—To prepare the CHW and patient *readiness* scores, we relied upon the factor structure developed in the Holt et al. (2007) methodology, derived from Conway and Huffcutt (2003), Ford, MacCallum, and Tait (1986), and Hinkin (1998) methods. We assessed *readiness*, a variable comprised of 22 measures, as three sub-scores (*appropriateness* comprised of 10 questions, *management support* comprised of 6 questions, and *change efficacy* comprised of 6 questions). We then calculated overall patient and CHW scores for *appropriateness*, *management support*, and *change efficacy* using averages (e.g., 10 patient *appropriateness* question scores added, then divided by the number of items ($n = 10$) to represent the patient *appropriateness* score).

Calculation of intent score.—We calculated an *intent* score according to the methodology established by Ajzen (1985, 1991). The Ajzen methodology allowed us to average the results across the six survey questions that comprised the *intent* construct, then average within patients and CHWs for group scores.

Demographics.—We evaluated the frequency of gender, age, race/ethnicity, nativity, United States generation, schooling, marital status, and annual household income subvariables within patients and CHWs using simple descriptive statistics. The demographic variables were evaluated as potential confounders in the analysis of the predictive relationship between *readiness* and *intent* within CHWs and patients.

Comparison of CHWs and patients in their readiness for cCHW integration into clinical settings.—Using the three scored *readiness* constructs, we compared patient and CHW *readiness* (*appropriateness*, *management support*, and *change efficacy*) via the two-sample independent t-test. The grouping (patients and CHWs) represents an independent, nominal, dichotomous variable. The scores for each *readiness* construct

(*appropriateness, management support, change efficacy*) represent dependent, ratio variables.

Predictive relationship of CHWs' readiness to become cCHWs on their intent to work as cCHWs, and predictive relationship of patient readiness to utilize cCHWs on their intent to utilize cCHWs.—Using the scored *readiness* constructs and the scored *intent* construct, we evaluated the effect of patient *readiness* to predict patient *intent* to utilize a cCHW, and CHW *readiness* to predict CHW *intent* to become a cCHW, with multiple linear regression models, developed via purposeful selection (Bursac, Gauss, Williams, & Hosmer, 2008; Zhang, 2016). Within the methodological structure of purposeful selection, we prioritized potential confounders with significant univariate relationships with *intent*, $p < .25$, into the model with the three *readiness* constructs, and included the confounder as a permanent variable in the final model when inclusion yielded a significant model, $p < .10$, and the deletion of the potential confounder resulted in a 15% or greater change in any remaining parameter estimate. We then applied these same principles to all potential confounders that did not initially yield a significant univariate relationship, $p > .25$. The scores for each *readiness* construct (*appropriateness, management support, change efficacy*) represent dependent, ratio variables. The scores for *intent* represent dependent, ratio variables.

D. Results

1. Demographics

Table 1 displays the patient and CHW self-reported demographics with respect to gender, age, race, nativity, United States generation, highest level of schooling completed, highest level of schooling completed in the United States, marital status, and annual household income. CHWs were 2.35 times more likely to be female. Patients and CHWs were in their mid to late-40s. All CHWs were Hispanic/Latino, and patients were 1.21 times more likely to be Hispanic/Latino than White, Black/African American, Asian/Pacific Islander, or other. CHWs were 39.3 times more likely to be first generation United States citizens.

Approximately 20% of patients and 20% of CHWs completed undergraduate or graduate educations. Approximately 20% of patients and 20% of CHWs completed undergraduate or graduate educations in the United States. CHWs were 3.08 times more likely to be married. Most patient and CHW homes earned less than \$20,000 per year.

2. Comparison of CHWs and Patients Regarding cCHW Integration into Clinical Settings

As seen in Table 2, CHWs experienced significantly greater *readiness* (as measured by *appropriateness, management support, and change efficacy*) to serve as cCHWs than did patients to utilize cCHWs. More specifically, CHWs experienced greater *readiness-appropriateness* to become a cCHW ($M = 5.18$, $SD = 0.67$, $SE = 0.085$) than did patients to use a cCHW ($M = 4.35$, $SD = 0.93$, $SE = .103$). This mean difference, $-.823$, 95% CI $[-1.09, -.56]$, is significant, $t(138.716) = -6.183$, $p < .001$. CHWs also experienced greater *readiness-management support* to become a cCHW ($M = 4.72$, $SD = 0.86$, $SE = 0.11$) than did patients to use a cCHW ($M = 3.76$, $SD = 0.87$, $SE = .098$). This difference, $-.96$, 95% CI $[-1.25, -.67]$, is significant, $t(137) = -6.464$, $p < .001$. Finally, CHWs experienced greater

readiness-change efficacy to become a cCHW ($M = 5.12$, $SD = 0.52$, $SE = 0.07$) than did patients to use a cCHW ($M = 4.14$, $SD = 0.81$, $SE = .09$). This difference, $-.983$, 95% CI $[-1.21, -.76]$, is significant, $t(131.981) = -8.65$, $p < .001$.

Patient *readiness* (*appropriateness*, *management support*, *change efficacy*) to utilize a cCHW significantly predicted patient *intent* to utilize a cCHW, $F(7, 52) = 9.492$, $p < .001$, when adjusted for highest level of education completed, highest level of education completed in the United States, United States generation, and marital status, with an adjusted R^2 of 50.2% (50.2% of *intent* is explained by *readiness*). The patient *readiness-appropriateness* construct was a significant positive predictor of patient *intent*, $p < .001$. The patient *readiness-change efficacy* construct was a significant positive predictor of patient *intent*, $p = .035$. The patient *readiness-management support* construct was not a significant predictor of patient *intent*, $p = .459$.

CHW *readiness* (*appropriateness*, *management support*, *change efficacy*) to become a cCHW significantly predicted CHW *intent* to become a cCHW, $F(7, 23) = 5.174$, $p = .001$, when adjusted for highest level of education completed in the United States, United States generation, gender, and age, with an adjusted R^2 of 49.3% (49.3% of *intent* is explained by *readiness*). The CHW *readiness-appropriateness* construct was a significant positive predictor of CHW *intent*, $p = .011$. The CHW *readiness-management support* and *readiness-change efficacy* constructs were not significant predictors of CHW *intent*, $p = .965$ and $p = .321$, respectively.

E. Discussion

The positive, predictive relationship of *readiness* on *intent*, experienced by patients and CHWs, signals the ability to pursue cCHW integration as members of clinical care teams. Once healthcare administrators or health promotion programs choose to invest in hiring cCHWs or training cCHWs, they can increase demand for cCHW services through investment in *readiness*, characterized by *appropriateness*, *management support*, and *change efficacy*. For example, the *readiness* construct *appropriateness* is the most significant predictor of *intent* for both CHWs and patients. We can use this knowledge to market cCHWs as reliable care coordination and care consult resources with benefits to patient outcomes and CHW career trajectory (increasing *appropriateness*), as this construct leads directly to patient *intent* to utilize cCHWs and CHW *intent* to become cCHWs. Similarly, we can capitalize upon *change efficacy* as a significant predictor of *intent* for patients, by equipping patients with tools to best use available cCHWs, leading to patient *intent* to utilize cCHWs.

It is important to note that CHWs currently experience greater *readiness* to serve as cCHWs than do patients to utilize cCHWs. This does not indicate patients lack *readiness*, but that more attention should be directed to inform and prepare patients for potential cCHW integration. For example, assistive programs tend to lean on cCHWs to develop rapport between cCHWs, patients, and healthcare providers (Collinsworth, Vulimiri, Schmidt, & Snead, 2013; Katigbak, Devanter, Islam, & Trinh-Shevrin, 2015). While cCHW-led outreach can be effective, we recommend fostering greater patient agency to enhance engagement

between patients and cCHWs. This may be achieved through participatory action research in a patient-centered design, allowing patients to establish desired relationship constructs, goals, and outcomes with cCHWs (Kangovi et al., 2014). A weighted shift in relationship-building responsibility from cCHW-only to patients *and* CHWs/cCHWs provides patients with a stronger understanding of cCHW ability to improve the healthcare experience and enhances patient investment in the relationship.

1. Implications for Healthcare Delivery

A key delivery model promoted in the United States Patient Protection and Affordable Care Act (ACA) is the patient centered medical home (PCMH), a model that stresses the importance of interdisciplinary, interprofessional healthcare teams – an ideal venue for integration of cCHWs. In an interdisciplinary, interprofessional team model, primary care physicians and health professionals coordinate patient care with a focus on patient choice. Thus, the crux of the PCMH rests on improved openness and continuity of patient-provider communication. However, even within the PCMH model, pressures for greater clinical productivity and resource burden on clinical personnel will continue. These issues require efficient and effective ways to strengthen patient-provider communication, a natural role for cCHWs (Balcazar et al., 2011). The cCHW can help provide relevant patient data, including beliefs, attitudes, behaviors, and physical/socioeconomic environments, that can inform development of an effective care plan. The relationship between the patient and the cCHW transforms the concept of patient-centeredness into feasible, practical elements as encouraged by the ACA (Martinez et al., 2011). Currently payment issues exist (e.g., coding structures, insurance covered benefits), making CHW recruitment challenging; however, transitioning CHWs into clinical settings may increase pay and motivation to work as a cCHW (Maes, Kohrt, & Closser, 2010).

We recognize a cCHW can provide valuable support to an active clinical care team, but we do not advocate for cCHWs to replace a licensed medical professional. Clarifying the roles of all team members is critical to the success of cCHW integration, and requires intentionality and through training of all team members; however, the opportunities for improved healthcare are significant and worth the investment.

2. Implications for Future Research

We explored patient and CHW *readiness* and *intent*, and identified strong models predicting *readiness* boding well for cCHW utilization. More work, including developing and evaluating effective training programs for all stakeholders, is needed to further clarify the functionalities, and limits, of the cCHW role.

Patients exist in complex communities, inclusive of family, friends, society, and policy. Although we gathered some understanding of patient and CHW perceptions regarding their willingness to use or become integrated cCHWs, we must consider the perceptions of others in their environment. For example, how do other clinical care providers view cCHWs? Are they ready or willing to work and communicate with cCHWs? Are policy makers willing to advocate for the inclusion of and funding for cCHWs? For these reasons, we need to invest

in greater stakeholder assessment to gain a more complete picture of community preparedness and expectations of cCHW integration.

3. Strengths and Limitations

We used validated instruments and an established conceptual model to guide our inquiry. Rather than just focusing on CHW readiness for inclusion in clinical settings, we included the critically affected patient group in our exploration – clearly both perspectives are valuable. A possible limitation of our study is that it was based on self-report, which may be affected by recall bias and reactivity to the assessment situation. The participants were recruited via convenience sampling and were affiliated with local stakeholders, possibly affecting the ability to generalize to broader populations. However, in a changing healthcare system that reflects the increasingly diverse demographics in the United States, our findings are likely to be relevant beyond our study.

F. Conclusion

CHW integration into clinical settings presents a unique opportunity to more effectively connect healthcare systems with the communities they serve. Although interest in cCHW integration is strong, we found CHWs express greater *readiness* for cCHW integration than patients. Nevertheless, CHW and patient *readiness* positively predict *intent* to become or to utilize a cCHW, and investment in cCHW promotion program across patient and CHW groups may strengthen the transition of cCHWs into existing care teams.

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Table 1.**Patient and CHW Demographics**

	Patient (n = 106)	CHW (n = 66)
	n (%)	n (%)
Gender	n = 106	n = 66
Male	26 (24.5)	8 (12.1)
Female	80 (75.5)	58 (87.9)
Age	n = 100	n = 54
	48.2 (± 17.8) *	45.6 (± 8.5) *
Race	n = 106	n = 66
White	32 (30.2)	0 (0)
Hispanic or Latino	58 (54.7)	66 (100.0)
Black or African American	13 (12.3)	0 (0)
Native American or American Indian	0 (0)	0 (0)
Asian/Pacific Islander	1 (0.9)	0 (0)
Other	2 (1.9)	0 (0)
Nativity	n = 93	n = 62
Mexico	23 (24.7)	47 (75.8)
USA	63 (67.7)	4 (6.5)
Other	7 (7.5)	11 (16.7)
United States Generation	n = 100	n = 62
1 st	27 (27.0)	58 (93.5)
2 nd	23 (23.0)	4 (6.5)
3 rd – 5 th	50 (50.0)	0 (0)
Highest Schooling	n = 100	n = 62
High school diploma equivalent (GED) or less	45 (45.0)	32 (51.6))
Some college credit, no degree; Trade/Technical/vocational training	35 (35.0)	16 (25.8)
Undergraduate; Graduate	20 (20.0)	14 (22.6)
Highest US Schooling	n = 89	n = 54
High school diploma equivalent (GED) or less	36 (40.4)	26 (48.1)
Some college credit, no degree; Trade/Technical/vocational training	37 (41.6)	16 (29.6)
Undergraduate; Graduate	16 (18.0)	12 (22.2)
Marital Status	n = 103	n = 66
Single, never married	32 (31.1)	7 (10.6)
Married or in domestic partnership	44 (42.7)	46 (69.7)
Widowed	6 (5.8)	0 (0)
Divorced	16 (15.5)	9 (13.6)
Separated	5 (4.9)	4 (6.1)
Annual Household Income	n = 99	n = 50

	Patient (n = 106)	CHW (n = 66)
	<i>n (%)</i>	<i>n (%)</i>
Less than \$20,000	64 (64.6)	36 (72.0)
\$20,000 - \$39,000	25 (25.3)	13 (26.0)
\$40,000 - \$59,000	4 (4.0)	1 (2.0)
\$60,000 or more	6 (6.1)	0 (0)

Values expressed as n (%) and reflective of the valid percent

* Mean $\pm$ Standard Deviation

Table 2.Comparison of Patient and CHW *Readiness (Appropriateness, Management Support, and Change Efficacy)*

<i>Readiness – Appropriateness</i>	Patient (n = 81)	CHW (n = 60)	p-value	95% CI
	4.35 ± 0.93 *	5.18 ± 0.67 *	< .001	–1.09, –.56
<i>Readiness – Management Support</i>	Patient (n = 79)	CHW (n = 60)	p-value	95% CI
	3.76 ± 0.87 *	4.72 ± 0.86 *	< .001	–1.25, –.67
<i>Readiness – Change Efficacy</i>	Patient (n = 78)	CHW (n = 59)	p-value	95% CI
	4.14 ± 0.81 *	5.12 ± 0.52 *	< .001	–1.21, –.76

* Values expressed as mean ± standard deviation