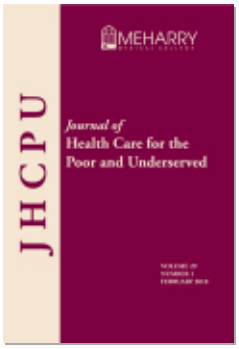
Mental Health Interventions with Community Health Workers in the United States: A Systematic Review



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Mental Health Interventions with Community Health Workers in the United States: A Systematic Review

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Abstract: Mental health conditions are common in the United States, yet the mental health workforce is limited in its capacity to reach disadvantaged populations. While a number of recent reviews demonstrate that community health worker (CHW)-supported physical health interventions are effective, and increase access to services, there are no recent reviews that systematically assess CHW-supported mental health interventions. To address this gap, the authors conducted a systematic review of mental health interventions with CHWs in the United States, and assessed the methodological rigor of such studies. Nine studies met review criteria. Though most of the studies reviewed showed inadequate methodological rigor, findings suggest CHW-supported mental health interventions show promise, particularly given evidence of feasibility and acceptability with underserved populations. The authors describe the rationale for mental health CHWs in the workforce, offer recommendations to strengthen the evidence base, and discuss implications of mental health interventions with CHWs for underserved populations.

Key words: Community health workers, mental health, treatment effectiveness, access to care, underserved populations.

Access to mental health care poses a significant challenge in the United States, as high unmet needs and low treatment rates persist among adults with mental illnesses.[1,2] Racial and ethnic mental health care disparities persist despite the improved insurance coverage through the Affordable Care Act.[3] Among those who eventually do seek treatment for a mental disorder, there is an 11-year gap between onset and first treatment contact.[4] Community health workers (CHWs) have gained increasing recognition as valued members of health care teams who have the potential to improve access to care, quality of care, and health equity in underserved communities. Defined as frontline health workers who are trusted members of, or have a markedly close understanding of, the community served,[5] community health workers can serve as liaisons between agencies and the community, facilitating access and improving services and, in particular, improving the cultural responsiveness of those services. They

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also have the potential to reach marginalized, underserved groups who have reason to mistrust formalized systems of care.[6] In recent years, systematic reviews of CHW interventions addressing physical health needs have demonstrated the effectiveness and acceptability of this approach;[7–9] however, no systematic review has focused on mental health. Therefore, the purpose of the current paper is to address this gap by highlighting challenges in the American mental health care system that CHWs are positioned to remedy; presenting a systematic review of evidence on mental health interventions with CHWs, with particular attention to methodological rigor; and discussing future directions for mental health CHW research.

Background: The mental health workforce struggles to meet the public's needs, showing evidence of shortages, lack of diversity, high turnover, and insufficient efficacy.[10] Yet simply expanding the existing mental health workforce without changing the dominant model of care is unlikely to have a major impact on the burden of mental illness in the United States.[11] That is, a model of care based upon highly trained mental health professionals serving only those clients who have the socioeconomic resources to access their services does not—and perhaps cannot—reach all who are in need. Mental health professionals lack ethnic and racial diversity[12] and tend to be concentrated in affluent urban areas,[13] with psychologists predominantly in private practice delivering services to nonpsychotic patients,[14] and psychiatrists the least likely of all medical specialists to accept insurance of any kind, especially Medicaid.[15] Framing mental health disparities primarily as a so-called *treatment gap* that is solvable by bolstering the existing system of care risks prioritizing interventions by professionals and downplaying workforce innovations and grassroots approaches to promoting mental health,[16,17] such as shifting duties to culturally-embedded and community-oriented CHWs.

The World Health Organization defines *task shifting* as the "rational redistribution of tasks among health workforce teams."[18[p.2]] Specific tasks are moved, if appropriate, from highly educated health workers to health workers with fewer qualifications in order to make more efficient use of human resources, and certain health worker tasks are moved to members of the community. Community health workers have played task-shifting roles in the global health arena for decades, and in a rapidly changing American health care landscape, CHWs are now receiving attention due to their potential to address health disparities, improve access, inform cultural approaches to care, and contain costs.[5,19] Mental health care is no exception; CHWs might influence each of the above domains, particularly given the strong impact of culture and other social determinants on psychological wellbeing. In mental health, CHWs could play both medically oriented and socially oriented roles.[20] As medically oriented members of the health care workforce, CHWs can share duties with mental health professionals.[21] For example, in developing countries, CHWs have been trained to deliver evidence-based mental health practices as effectively as professionals.[22–24] As socially oriented advocates, they can work outside traditional health care settings—in homes, schools, or religious spaces—in roles that increase mental health literacy or improve engagement with community activities that promote psychological wellbeing.

While showing promise from a theoretical standpoint, additional evidence for the use of mental health CHWs is greatly needed; in particular, a demonstrated effect on

health outcomes could help build momentum for systems changes supporting their workforce participation[25] and their workplace empowerment.[26] In the interest of ensuring that policy and practice initiatives to create mental health roles for CHWs are not ahead of the data, the purpose of the current systematic review is to describe known empirical studies on the topic, assess their effectiveness and methodological rigor, highlight CHW roles, and suggest directions for future research to the advantage of strengthening the existing evidence base on mental health interventions with CHWs in the United States.

Methods

Identification of studies. Between March and July 2016, the authors systematically reviewed published, peer-reviewed literature using relevant electronic databases that included PsycINFO, PUBMED, and Google Scholar. No date restrictions were imposed. The following search terms, separately or in combination, were used:* community health worker, CHW, *promotore(s)*, *promotora(s)*, lay outreach worker, community health aid, natural helper; mental health, depression, distress, and psychiatric distress. Articles were selected for inclusion in this review if: (1) they reported on an intervention delivered or supported by community health workers; (2) the primary aim of the intervention was to address a mental health need; (3) the study was conducted in the United States; and (4) the study was published in a peer-reviewed, English-language journal. When operationalizing the term *community health worker*, we followed the American Public Health Association's definition; that is, frontline public health workers who are trusted members of and/or have a markedly close understanding of the community served. [5] All relevant intervention studies meeting this criteria were included with no restrictions based on research design.

Our search strategy resulted in the screening of 742 titles and abstracts. Seven hundred nineteen articles were excluded. In general, excluded titles and abstracts: 1) reported on CHWs within the context of addressing physical health needs; 2) focused on mental health needs and/or interventions that were not supported by CHWs; and 3) were conducted outside of the United States. Twenty-three full-text articles were retained and examined. Each of the two authors independently assessed these articles for inclusion. Fourteen articles were excluded because they examined the effect of CHW training efforts (n=3); were review articles with a focus on health outcomes (n=3); were conceptual or theoretical articles (n=2); were articles reporting on the development of CHW training curricula (n=2); were intervention design or protocol papers (n=2); or

*Certified peer support specialists in the mental health space are sometimes characterized as a CHW variant. Defined as people previously diagnosed with a mental health condition who provide support for people with a similar condition,[27,28] certified peers now provide billable services in community mental health facilities and in the Veterans Health Administration facilities throughout the United States. Due to unique features of peer support specialists that distinguish them from other CHWs (particularly their location in behavioral health specialty care, and their lived experience of mental illness), and also due to the fact that the evidence supporting their work has been extensively reviewed elsewhere,[29,30,31] the current review excludes research on peer support specialists in specialty mental health care.

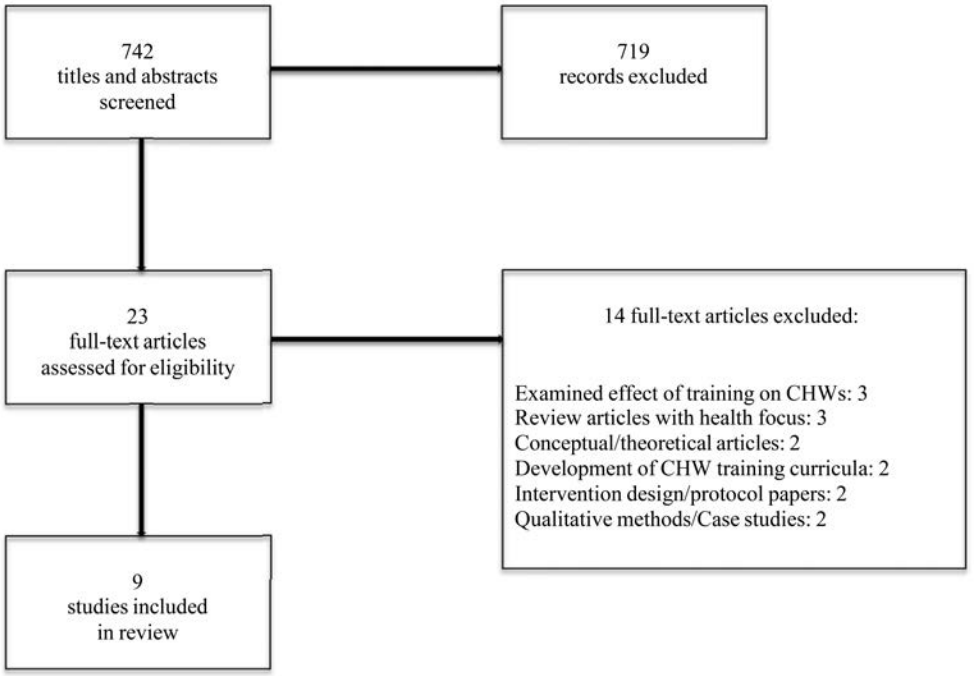

Figure 1. Study Flow Diagram

were case studies or used qualitative methods (n=2; see Figure 1). Nine peer-reviewed articles met criteria and are included in our analysis. Each of the two authors independently rated the methodological rigor of the nine articles, and if there was disagreement, the authors met to discuss independent findings and reach consensus.

Analysis. The nine studies meeting inclusion criteria are presented in Table 1, with the intervention models and outcomes briefly described. Each study's methodological rigor was assessed via seven research quality indicators adapted from the Cochrane Collaboration[32] and the Jadad Scale[33] for use with vulnerable, underserved populations[34] (see Table 2). Quality indicators include the presence of a control condition, random assignment, blinded assessors, adequate assessment of treatment fidelity, an intent-to-treat sample, adequate attrition data, and adequate outcome data. Adequate attrition data was defined as including either the average number of sessions attended by participants or the total number of participants who did not complete treatment. Adequate outcome data was defined as including the level of detail needed to calculate symptom effect sizes. Each indicator of methodological rigor was scored using a dichotomous "yes" or "no" ranking system. One point was awarded for each quality indicator present in the study design. If articles did not mention a given indicator, it was assumed to be missing from the study design and awarded 0 points. The sum score of quality indicators range from zero (0) to seven (7) and provides an overall Methodological Rigor Score for each study. The background of CHWs as well as their training and role in supporting mental health interventions, was also reviewed (see Table 3).

Table1.

SUMMARY OF STUDIES REPORTING RESULTS OF COMMUNITY HEALTH WORKER-ASSISTED INTERVENTIONS FOR MENTAL HEALTH NEEDS IN THE UNITED STATES

Study/ Authors	Sample	Intervention Overview	Control Group	Primary Mental Health Outcome Variable(s)	Results		
					Attrition	Clinical Outcomes	Effect Size
Hovey, J.D., Hurtado, G., & Seligman, L.D. (2014)	N=6 *Target Population:* Female migrant farmworkers of Mexican descent from Montrose area in Colorado *Sample Characteristics:* Mean age: 31.8 years; Place of Birth: 100% born in Mexico; Time Living in the U.S.: 66.7% in U.S. for less than a year	• Six week support group-based intervention employing CBT techniques, including imaginal and in vivo exposure, assertiveness training, cognitive restructuring, and behavioral strategies (e.g., positive activity scheduling; coping skills). • Emphasis on culturally-valued interactions, such as simpatia (warmth and kindness), respeto (respect), and personalismo (personalized). • Sessions held weekly for 1½ hours at a local mental health center. Transportation was provided.	None	*Stress*: Migrant Farmworker Stress Inventory *Depression*: Center for Epidemiologic Studies Depression Scale (CES-D) *Anxiety*: Personality Assessment Inventory Anxiety Scale	0% drop out rate	• Migrant farmworker stress and depressive symptom scores were significantly reduced at post-treatment and improvements were maintained at follow-up • 83% of women achieved clinically significant baseline-post-treatment change and end-state functioning for migrant farmworker stress and depressive symptoms.	*Migrant farmworker stress:* d=.64–.72 *Depressive symptoms:* d= 1.54–1.60
Kieffer, Caldwell, & Welmerink et al. (2013)	N=275 *Target Population:* Pregnant Latinas residing in southwest Detroit who were 18 years old or older and less than 20 weeks gestation at eligibility screening *Sample Characteristics:* Age: 66.7% between 18–29; Place of Birth: 85.9% born in Mexico; Time Living in U.S.: 52.6% lived in U.S. 5 years or less Language: 74.8% did not speak any English	• 14 session social support-based healthy lifestyle intervention (Healthy MOMs), designed to empower pregnant women to develop knowledge and skills to reduce social and environmental barriers to healthy eating and regular exercise. • Culturally and linguistically tailored • Incorporated information, discussion, and activities via home visits and group meetings (held at community health center) during pregnancy and post-partum	Healthy Pregnancy Education (4 group meetings at community mental health agency)	*Depression:* Center for Epidemiologic Studies Depression Scale (CES-D)	Women randomized to MOMs attended an average of 10.5 sessions; 98.6% attended at least one session; 10.1% attended all 14 sessions	• MOMs participants were less likely than control group participants to be at risk for depression at follow-up • Between baseline and follow-up, MOMs participants experienced a significant decline in depressive symptoms • From baseline to postpartum, there was a significant intervention effect among non-English speaking women only.	*Depression Risk* (based on categorical CES-D score): h=.34–.42 (at follow-up); h=.06–.12 (at post-partum time point)

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Table 1. (*continued*)

Study/ Authors	Sample	Intervention Overview	Control Group	Primary Mental Health Outcome Variable(s)	Results		
					Attrition	Clinical Outcomes	Effect Size
Moore, Karno, Ray, Ramirez, Portillo, Rizo et al. (2016)	N=29 *Target Populations:* Male, Latino day laborers who were at least 21 years old, were Spanish speaking, reported consuming more than 14 drinks per week or more than 4 drinks at least twice per week, were not currently in treatment for substance use disorder, were not planning to leave town in the next six months, had access to a telephone for contact. *Sample Characteristics:* Mean Age: 42.7 (*SD*=11.3) Place of Birth: 93% were born outside of the U.S. Immigration Status: 66% identified as undocumented Living Arrangements: 34% homeless	• Culturally adapted 3-session intervention that combined Motivational Enhancement Therapy (MET; e.g., structured feedback, decision rulers, exploration of positive and negative aspects of drinking) and Strengths-Based Case Management (SBCM; e.g., identification of service needs, barriers to service, personal strengths, and available resources) intervention. • Delivered in Spanish by *promotoras* at a community-based organization with volunteer programs to address health needs of day laborers in Los Angeles.	Brief Feedback administered once by a trained, Spanish speaking research assistant	*Substance Use:* Alcohol Use Disorders Identification Test (AUDIT); number of drinks consumed per week, frequency of drinking six or more drinks in one occasion in past month	85.7% of intervention group participants attended all sessions	• Both the intervention and control groups reduced alcohol intake and improved AUDIT scores over time. • There were no statistically significant differences between groups; however, at the six week follow-up, intervention group participants drank less and had lower AUDIT scores. The differences persisted at the 12-week follow-up but diminished at the 18-week follow-up. • Within-group repeated analysis of variance (ANOVA) suggest significant change over time for drinks per week among intervention group participants but not for control group participants.	*Drinks per week:* d=.77 (at six week follow-up); d=.41 (at 12 week follow-up)
Nicolaidis, C., Mejia, A., Perez, M., Alvarado, A., Celaya-Alston, R., Quintero, Y., & Aguillon, R. (2013)	N=10 *Target Population:* Spanish-speaking Latina women in the Portland, Oregon area who were at least 18 years old, had moderate to severe depressive symptoms, and a current or past history of intimate partner violence (IPV) *Sample Characteristics:* Mean Age: 38 Place of Birth: 100% born outside of the U.S. Household Income: 100% had annual household incomes less than $30,000 Language: 80% Spanish; 20% Spanish and English	• 12-week group abuse-sensitive depression care intervention and individual case management services based on principles of chronic illness management and cognitive behavioral therapy (CBT) • Intervention was adapted to be multi-faceted and culturally-tailored to more fully meet the needs of Latina IPV survivors. Latino cultural values and strengths, social and feminist empowerment ideals, and existing community resources were integrated into treatment. • Delivered by a *promotora* at a community-based agency	None	*Depression*: Patient Health Questionnaire-9 (PHQ-9)	100% of participants attended at least 10 of the 12 group sessions	• There was a significant decrease in mean depression scores among participants	Not reported

(*continued on p. 165*)

Table 1. (*continued*)

Study/ Authors	Sample	Intervention Overview	Control Group	Primary Mental Health Outcome Variable(s)	Results		
					Attrition	Clinical Outcomes	Effect Size
Pratt, Ahmed, Noor, Sharif, Raymond & Williams (2015)	N=55 *Target Population:* Somali women living in Minnesota who were 18 years or older, interested in attending a program to build positive mental health, and felt they would benefit from the course *Sample Characteristics:* Employment Status: 56% worked outside of the home Education: 18% had college education Time in U.S.: 44% have been living in the U.S. more than 10 years	• 8-session cognitive behavioral therapy model, Living Life to the Full, that focused on building skills for positive mental well-being in the context of experiencing a wide range of stressors. • Intervention materials were translated to Somali. • Delivered by community health workers (CHWs) who were also Somali women at a local health drop-in center serving an urban community where many Somalis live.	None	*Mood:* Self-rated visual scales where participant rates level of happiness and anxiety (based on scale of 1–5 represented by a sad face to a smiling face)	100% of participants completed the program in full	• Over time in the program, participants' mean happiness levels significantly increased and mean anxiety levels significantly decreased.	Not reported
Roman, Gardiner, Lindsay, Moore, Luo, Baer et al., (2009)	N=613 *Target Population:* Pregnant women initiating services from public prenatal clinics in Kent County, Michigan who had no plans to move in the next 18 months, were Medicaid eligible, were at least 16 years old, spoke Spanish or English, had no pre-existing relationship with a home visiting nurse, and had no diagnosis or treatment for a mental health condition within the last two years *Sample Characteristics:* Age: Ranged from 16-42 years old Family Status: Over 80% were single Education: 57% reported having less than a 12th grade education	• A Nurse-Community Health Worker (CHW) intervention for pregnant women adapted from Medicaid enhanced prenatal/postnatal services (EPS). •· The intervention is guided by an ecological stress theoretical framework and addresses stressors associated with poverty that influence health and well being, in addition to women's health problems • CHWs provided relationship-based support through phone and face-to-face contacts where they facilitated increased self-esteem through positive regard, promoted positive health behaviors, developed self-awareness of stressors, causes of stressors, encouraged active problem solving, and increased self-determination through developing personal life goals (adapted from Building Strong Families program).	Usual Community Care that includes Medicaid enhanced prenatal/ postnatal services (EPS)	*Depression:* Center for Epidemiological Studies Depression Scale (CES-D)	Nurse-CHW group received an average of 24.4 contacts during the perinatal period; Usual Community Care group received an average of 8.5 contacts over the same period.	• Women in the Nurse-CHW group experienced significantly fewer depressive symptoms compared to the Usual Community Care condition •· Women who reported low psychosocial resources, high stress, or both high stress and low resources and were assigned to the Nurse-CHW intervention experienced a significant reduction in depression. • The results were maintained after adjusting for face-to-face contacts	Not reported

(*continued on p. 166*)

Table 1. (*continued*)

Study/ Authors	Sample	Intervention Overview	Control Group	Primary Mental Health Outcome Variable(s)	Results		
					Attrition	Clinical Outcomes	Effect Size
Spencer, Hawkins, Espitia, Sinco, Jennings, Lewis, Palmisano, & Kieffer (2013)	N=164 *Target Population:* African American and Hispanic adults living in either the Southwest or Eastside neighborhoods of Detroit, Michigan who had physician-diagnosed type-2 diabetes without serious diabetes-related complications *Sample Characteristics:* Race/Ethnicity: 57.3% African American; 42.7% Hispanic Sex: 71% female Mean Age: 53 years old Family Status: 69% married/partnered Education: 59% high school graduates	• CHW-delivered healthy lifestyle and diabetes self-management program that included 11 group diabetes education classes, home visits (twice per month), and one clinic visit with participants and primary care providers. • Diabetes education classes were culturally tailored in English and Spanish and delivered every 2 weeks at community locations. Content focused on stress reduction, physical activity, and healthy eating • The intervention used empowerment-based approaches, such as motivational interviewing, to support participants' goal setting and action plans	6-month delayed intervention (waitlist control)	*Diabetes-related Emotional Stress:* Problem Areas in Diabetes Scale (PAID) *Depression:* Patient Health Questionnaire-9 (PHQ-9)	17.1% drop out rate (of study, not intervention)	• Adjusting for demographics, diabetes-related emotional distress significant decreased for both the intervention and delayed intervention groups • The PHQ-9 did not change significantly; however, the PHQ-2 showed a significant decrease in depression. • The intervention effect was greater for Latinx participants than for African American participants.	*Diabetes-related Emotional Stress* (PAID Average Intervention Effect): .30 (overall); .53 (for Latinx) *Depression* (PHQ-2 Average Intervention Effect): .21 (overall); .31 (for Latinx)
Tran, Ornelas, Perez, Green, Lyn, & Corbie-Smith (2014)	N=58 *Target Population:* Latina women, at least 18 years old, who lived in three North Carolina counties. *Sample Characteristics:* Mean Age: 38 years old Family Status: 64% married or living with partner Employment Status: 59% employed Place of Birth: 65% born in Mexico Language: 98% Spanish speaking	• *Promotora*-delivered intervention (Amigas Latinas Motivando el Alma/ Latina Friends Motivating the Soul; ALMA) to improve mental health among Latinas that was developed within a community-based participatory framework • ALMA was linguistically and culturally tailored for recently immigrated Latinas and focused on mental health, stress, and coping skills, • The intervention included at least three contacts	None	*Depression:* Center for Epidemiological Studies Depression Scale (CES-D) – Spanish version *Stress:* Perceived Stress Scale (PSS) and Migrant Farmer Stress Inventory (abbreviated version)	Not reported	• Participants' depressive symptoms, perceived stress, and acculturation stressors significantly decreased over time in the intervention program.	Not reported

(*continued on p. 167*)

Table 1. (*continued*)

Study/ Authors	Sample	Intervention Overview	Control Group	Primary Mental Health Outcome Variable(s)	Results		
					Attrition	Clinical Outcomes	Effect Size
Waitzkin, Getrich, Heying, Rodriguez, Parmar, Willging et al. (2011)	N=120 *Target Population:* Primary care patients at two Community Health Centers in New Mexico who met criteria for depression based on the PHQ. *Sample Characteristics:* Reported for all patients screened at the community health centers, not the 120 participants who met eligibility criteria and enrolled in the trial	• *Promotora*-delivered intervention to address problems in four contextual areas: underemployment, inadequate housing, food insecurity, and violence among primary care patients with depression. • *Promotoras* helped patients resolve contextual problems potentially contributing to depression via connecting them with resources. • This intervention was delivered in medication treatment and/or referral to psychiatric or psychological consultation as needed.	Enhanced care	*Depression:* Patient Health Questionnaire (PHQ; English and Spanish versions)	Not reported	• There was not a significant intervention effect on depression.	Not reported

Table 2.

METHODOLOGICAL RIGOR OF COMMUNITY MENTAL HEALTH WORKER-ASSISTED INTERVENTIONS FOR MENTAL HEALTH NEEDS IN THE UNITED STATES.

Study	Control Group (Yes=1; No=0)	Random Assignment (Yes=1; No=0)	Blind Assessors (Yes=1; No=0)	Treatment Fidelity Adequately Assessed (Yes=1; No=0)	Intent to Treat Sample (Yes=1; No=0)	Adequate Attendance/ Attrition Data Reported (*Defined as:* including either the average number of sessions attended by participants or the total number of participants who did not complete treatment) (Yes=1; No=0)	Adequate Outcomes Reported (*Defined as:* including the level of detail needed to calculate symptom effect sizes) (Yes=1; No=0)	Methodological Rigor Score
Hovey, J.D., Hurtado, G., & Seligman, L.D. (2014)	0	0	0	0	0	1	1	2
Kieffer, Caldwell, & Welmerink et al. (2013)	1	1	1	1	1	1	1	7
Moore, Karno, Ray, Ramirez, Portillo, Rizo et al. (2016)	1	1	0	0	0	1	1	4
Nicolaidis, C., Mejia, A., Perez, M., Alvarado, A., Celaya-Alston, R., Quintero, Y., & Aguillon, R. (2013)	0	0	1	0	0	1	1	3
Pratt, Ahmed, Noor, Sharif, Raymond & Williams (2015)	0	0	0	0	0	1	0	1
Roman, Gardiner, Lindsay, Moore, Luo, Baer et al., (2009)	1	1	1	0	1	1	1	6
Spencer, Hawkins, Espitia, Sinco, Jennings, Lewis, Palmisano, & Kieffer (2013)	1	1	0	1	1	1	1	6
Tran, Ornelas, Perez, Green, Lyn, & Corbie-Smith (2014)	0	0	0	0	0	0	1	1
Waitzkin, Getrich, Heying, Rodriguez, Parmar, Willging et al. (2011)	1	1	0	0	0	0	1	3

Note: If articles did not mention a given indicator, it was assumed to be missing from the study design and awarded 0 points

Table 3.

COMMUNITY HEALTH WORKER (CHW) PROVIDER, TRAINING, & ROLE

Authors	Provider(s)	CHW Training	CHW Role
Hovey, J.D., Hurtado, G., & Seligman, L.D. (2014)	Co-led by licensed clinical psychologist and *promotoras*. Both providers were female, bilingual, and bicultural. *Promotoras* were current or former migrant farmworkers trained as health educators	*Promotoras* were trained in mental health symptoms and disorders; risk and protective factors for mental and physical health; child development and parenting issues; medication; therapy techniques; and the administration of psychological tests.	Co-led CBT support groups. Coordinated group logistics (e.g., scheduling the room; arranging transportation, etc.), prepared the educational material, provided interventions, self-disclosed relevant life experiences.
Kieffer, Caldwell, & Welmerink et al. (2012)	Led by trained Women's Health Advocates (WHAs), community health workers who were Spanish-speaking, Latinas.	Dubbed as "extensive" but not described	WHAs provided social support, emotional support, facilitated group discussions, encouraged problem solving and shared strategies.
Moore, Karno, Ray, Ramirez, Portillo, Rizo et al. (2016)	4 volunteer *promotoras* were all primarily Spanish-speaking Latina women immigrants with 3–8 years of experience as health promoters.	Training provided by bilingual study psychologists occurred over a 2 day period (16 hours) and included background on unhealthy drinking in Latinos, reviewing the treatment manual, and observing staged role play of a *promotora* with a day laborer. Biweekly supervision was provided throughout the study period. Supervision was comprised of continued role play and review of audiotaped interaction with study participants.	Delivered a culturally adapted motivational enhancement and strengths-based case management intervention; included discussing risks associated with alcohol use; barriers and motivators to change; goal setting; linkages to medical, mental health, and social services

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Table 3. (*continued*)

Authors	Provider(s)	CHW Training	CHW Role
Nicolaidis, C., Mejia, A., Perez, M., Alvarado, A., Celaya-Alston, R., Quintero, Y., & Aguillon, R. (2013)	The intervention was led by *promotora* who was a Mexican-born woman with decades of experience as a domestic violence advocate and community health worker; group co-facilitator is a Honduran-born woman with a Masters in Sociology	*Promotora* attended full-day training on depression and other mental health issues common in domestic violence survivors and a 3-day training on Motivational Interviewing. The *promotora* also met individually with the PI and the Program Coordinator throughout the intervention for additional technical assistance and supervision.	Led intervention; the *promotora* served as care manager; helped women gain access to or navigate the healthcare system; provided case management services as needed; and led 12-session group.
Pratt, Ahmed, Noor, Sharif, Raymond & Williams (2015)	Bilingual CHW (English and Somali) and able to read in both languages	3 days of training with a consultant from the Living Life to the Full (LLTTF) program. Provided with a curriculum (which consisted of visual CBT-based content) with accompanying scripts to be delivered alongside content.	Leader of LLTTF program; 8 topics or sessions, each of which takes approximately 1.5 h to cover. Each CHW conducted outreach to the community and recruited 5 Somali women to participate in the LLTTF course.
Roman, Gardiner, Lindsay, Moore, Luo, Baer et al., (2009)	A nurse and two CHWs functioned as a team. CHWs were women with a high school diploma or GED and sometimes prior experience working in community or health care settings.	CHWs completed a certificate core training program (10 sessions) sponsored by a local CHW training collaborative of community agencies and the local community college. This was followed by monthly educational sessions that included units such as relationship building, problem solving, goal setting, stress management, and self-esteem.	Assessment co-visit with nurse, then separate visits. Nurses guided the CHW care, led a multidisciplinary team assessment, provided crisis intervention and case management, assessed and managed health problems (including screening for depression), and had periodic office visits with prenatal providers. CHWs provided relationship-based support through phone and face-to-face contacts.

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Table 3. (*continued*)

Authors	Provider(s)	CHW Training	CHW Role
Spencer, Hawkins, Espitia, Sinco, Jennings, Lewis, Palmisano, & Kieffer (2013)	CHWs were from the 2 participating communities, where they were ethnically matched with their assigned participants	CHWs underwent more than 80 h of training which included empowerment approaches like motivational enhancement	CHWs conducted 3 activities: (1) diabetes education classes, (2) home visits to address participants' specific self-management goals, and (3) 1 clinic visit with the participant and his or her primary care provider. Eleven 2-h group sessions of 8–10 participants were held every 2 weeks at community locations. In home visits, CHWs assisted participants in setting patient-specific goals and supporting their progress.
Tran, Ornelas, Perez, Green, Lyn, & Corbie-Smith (2014)	*Promotoras* were recruited and trained to serve as lay health educators for women in their social network	*Promotoras* received at least six 2- to 3-hour training sessions on mental health, stress, and coping skills and how to reach out to women in their social networks. After the training, the *promotoras* met monthly with the curriculum facilitator (licensed clinical social worker) as a group, for four to nine booster sessions.	*Promotoras* identified up to three women (*compañeras)* in the community with whom to share mental health resources and information with the goal of preventing and reducing negative outcomes. *Promotoras* conducted at least three contacts with the selected *compañeras*.
Waitzkin, Getrich, Heying, Rodriguez, Parmar, Willging et al. (2011)	Partnership between Primary Care Physician and *promotora*. *Promotoras* were bilingual in English and Spanish, and were high school graduates with roots in the community.	Five training sessions took place at each of the two participating CHCs. Conferences for *promotoras,* PCPs, and other staff members took place over the lunch hour at the CHCs. *Promotoras* also took part in an educational program on depression for community health workers.	*Promotoras* used a resource directory to connect patients to resources. The *promotora* tracked the referral through follow-up calls with the patient and the organizations. *Promotoras* also administer questionnaires, make follow up calls, and discuss treatment plan with PCP.

Results

Nine studies published between 2009 and 2016 met inclusion criteria for this review.[35–43] The articles include a total of 1,330 subjects who participated in studies of mental health interventions with CHWs. The majority of studies included in this review (n=6; 66.7%) focused on CHW-supported mental health interventions developed and tested among Latinx* populations in the United States.[35–38,41,42] More than half of these studies included a majority of participants who were recent immigrants and did not speak English.[35,36,38,42] In addition, most of the studies reviewed (n=6; 66.7%) tested CHW-supported interventions to address women's mental health. Four of the six studies with Latinx target populations specifically examined interventions to address the mental health of Latinas,[35,36,38,42] whereas one study assessed a CHW-supported intervention to promote positive mental health among Somali women.[39] Another study examined the effect of a nurse-CHW intervention for pregnant women initiating prenatal care from public health clinics.[40] The majority of CHW-supported mental health interventions included in this review were delivered in community-based settings.[35–39,41,43] Studies commonly discussed the importance of community partnerships and input when designing and implementing the interventions, and four studies (44.4%) explicitly used a community-based participatory research approach.[36,38,41,42]

Methodological rigor. On average, the studies included in this review had relatively low methodological rigor. The average Methodological Rigor Score (MRS) across studies was 3.67, with scores ranging from one to seven (see Table 2). Five of the studies included in this review (55.6%) were randomized controlled trials,[36,37,40,41,43] while four studies (44.4%) were pilot projects that utilized pre-experimental, one group pre-post-test designs.[35,38,39,42] Only two studies[36,41] reported information about intervention fidelity.

Effectiveness. Results of eight of the nine studies reviewed found CHW-supported interventions effective for addressing participants' mental health needs.[35–42] Two studies (22.2%) conducted sub-group analyses suggesting the interventions may have a greater impact on the mental health of participants who are more vulnerable or have less access to resources.[36,40] Roman and colleagues found that among women randomized to the Nurse-CHW intervention group, those who reported low psychosocial resources, high stress, or both, had greater reductions in depressive symptoms compared with women who did not report these experiences.[40] Additionally, Kieffer and colleagues' findings indicate that their intervention for pregnant Latinas had the most robust effect among non-English-speaking women.[36]

Though most studies reported statistically significant differences in mental health outcomes as a result of CHW-supported interventions—either when compared with a control condition via randomized controlled trial, or when assessed over time via pre-experimental one group pre-post-test designs—it is also important to examine the effect sizes of these interventions. Four studies included in this review reported effect sizes.[35–37,41] Three studies used Cohen's *d* to report effect sizes.[35,37] Cohen's *d* indicates the standardized difference between two means. A Cohen's *d* of 0.2 is considered a

*Here, we employ the gender-neutral term *Latinx* when we refer to people of Latino/a ethnicity.

small effect, 0.5 suggests a medium effect, and 0.8 indicates a large effect. Hovey and colleagues report effect sizes ranging from 1.54–1.60 for depression and from .64–.72 for migrant farmworker stress, suggesting medium and large intervention effects, respectively.[35] Moore and colleagues reported effect sizes for alcohol use in the medium range, ranging from .41–.77.[37] Spencer and colleagues report small overall intervention effects for diabetes-related emotional stress (.30) and depression (.21).[41] However, they indicate small to medium effects size for Latinx participants, ranging from .31 for depression to .53 for diabetes-related emotional distress. An h-statistic was used to report effect size in Kieffer and colleagues' study.[36] The h statistic is interpreted the same way as Cohen's *d*, and results of this study suggest small to medium effect sizes related to depression risk, ranging from .06–.42.

Attrition. Across the seven studies reporting on attrition (77.8%), results suggest participants were highly engaged in CHW-supported mental health interventions. In fact, two studies (22.2%) reported that all participants completed their intervention programs in full,[35,39] while one study (11.1%) indicated that 85.7% of intervention group participants attended all sessions.[37] Nicolaidis and colleagues reported that 100% of their participants attended at least 10 sessions of their 12-session program.[38] Two studies describing attrition based on average attendance also suggest participant engagement. In Kieffer and colleagues' study, participants randomized to the 14-session intervention group attended an average of 10.5 sessions,[36] whereas Roman and colleagues report that participants randomized to the intervention group received an average of 24.4 contacts during the intervention period, compared with an average of 8.5 contacts received by participants in the usual care condition.[40]

Mental health outcomes and measures. Seven of the nine articles (77.8%)[35,36,38,40–43] tested CHW-supported interventions to address depression among underserved populations. Three of the articles focused on depression also included stress as a primary outcome variable.[35,41,42] One article tested a CHW-supported intervention for mood more broadly,[39] while another focused on alcohol use.[37]

The studies reviewed primarily used established symptom scales to assess mental health outcomes. Among studies focused on depression, the most commonly used symptom measures included the Center for Epidemiological Studies Depression Scale (CES-D)[35,36,40,42] and the Patient Health Questionnaire (PHQ-9; PHQ-2).[38,41,43] Measures of stress included the Migrant Farmworker Stress Inventory,[35,42] the Perceived Stress Scale,[42] and the Problem Areas in Diabetes Scale.[41] Moore and colleagues' study testing the effect of a CHW-supported intervention for Latino day laborers with alcohol use disorders used the Alcohol Use Disorders Identification Test (AUDIT) as well as self-reported measures of drinking frequency.[37] Pratt and colleagues' work employed self-rated visual scales, by which participants rated their mood based on a series of faces, ranging from sad to smiling.[39] Among the target population of Somali women in Minnesota, there exists a strong stigma surrounding mental illness. As such, these ratings may well have been affected by the context in which they were made. It is worth noting that no studies used a structured clinical interview to determine whether study participants met criteria for the presenting mental health concerns.

CHW providers, training, and roles. The studies included in this review recruited

CHWs to support mental health interventions with attention to shared identities and shared community between CHWs and study participants. Studies used the terms *promotora*,[35,37,38,42,43] *women's health advocate*,[36] and *community health worker* (CHW) [39–41] to designate the individuals from the community who were providing frontline services through these interventions.

Although the majority of studies (n=6; 66.7%) delivered mental health interventions that were supported solely by CHWs, three studies tested interventions in which CHWs co-led an intervention with a mental health or health professional.[35,40,43] These professionals included a licensed clinical psychologist,[35] a nurse,[40] and primary care physicians.[43]

Community health worker training was not uniformly detailed across the nine studies reviewed. However, among studies that did describe CHW training, four (44.4%) described programs that ranged from two to four days.[37–39,42] One study described an 80-hour (10-day) training program,[41] whereas another study indicated that CHWs completed a 10-session core training program provided by a CHW training collaborative in their community.[40] Ongoing supervision[37,38] or booster sessions[40,42–43] for CHWs were part of the training described in five studies (55.6%).

The role of CHWs in supporting mental health interventions included some key elements across the studies reviewed: support group leadership or co-facilitation;[35,36,38,39,41] social or emotional support;[35,36,40] assistance with problem solving, goal setting, or developing positive coping strategies;[36,37,41] case management;[37,38] and assistance with identifying and/or accessing needed social services.[35,37,38,42,43]

Discussion

Despite methodological shortcomings, the studies included in this systematic review begin to demonstrate the feasibility and effectiveness of mental health interventions with CHWs in the United States, particularly when implemented among underserved populations whose language, culture, location, or socioeconomic vulnerabilities limit their access to traditional mental health care. Due to low methodological rigor on average among studies in this area, it is not yet possible to draw robust conclusions about mental health interventions with CHWs. Little more than half of the studies were randomized controlled trials, while the remaining studies were uncontrolled pilots. Given that seven of the nine studies explicitly discussed making intervention adaptations, with specific attention to cultural and linguistic tailoring, the lack of fidelity assessment among many of the reviewed studies also presents a serious methodological concern. More rigorous research is needed, particularly research that explicitly determines whether CHWs are implementing interventions with fidelity to the model. These limitations notwithstanding, the body of work that was reviewed does begin to demonstrate the feasibility and acceptability of CHWs in mental health roles. In particular, review findings indicate that mental health CHWs are acceptable to clients, as evidenced by low attrition and high session attendance. This suggests sufficient justification for conducting effectiveness studies with greater methodological rigor (e.g., RCTs) as well as expanding into implementation studies that would set the stage for future meta-analyses.

Most of the reviewed studies focused on serving recent immigrants to the United States, typically Latinx populations, although one study focused on Somali immigrants. Because restrictive immigration policies may be detrimental to the mental health of Latinx in the United States[47] and because undocumented immigrants have lower access to mental health services,[48] it may be the case that mental health CHWs will have ever-increasing relevance, particularly since the few available empirical studies betoken real promise regarding the delivery of mental health care that is accessible and acceptable to such populations. Other underserved groups, such as rural Americans and African Americans more generally, have benefited from physical health CHWs[7] and may also benefit from mental health CHWs, given their potential to improve access to care.[5]

Limitations of the current systematic review include the following. First, mental health is a broad area, encompassing both formal diagnoses and lay understanding of psychological health; therefore, some publications related to the topic but lacking the use of key search terms may be missing. Second, the review may not have captured research about workers who are understood to be CHWs but who were not designated by key words that matched our APHA-based operationalization. Finally, the review was limited to research on CHWs in the United States due to concerns about the generalizability of work conducted in vastly different health care and sociopolitical contexts, which places limitations on this review's applicability to other regions. Our review does suggest that controlled, larger-scale research is strongly needed in order to draw robust conclusions about CHWs in mental health, including roles they can play, training and supervision they need, and empirical evidence for outcomes they foster in their clients.

In this review, vast differences in CHW roles were apparent, ranging from case management, to intervention work, to consultation on community-based participatory research teams. With such differences in play, what can we suggest are fundamental attributes of a mental health CHW? The widely-accepted APHA definition describes a frontline health worker with "a close understanding of the community served,"[5[p.1]] which is interpreted by the reviewed studies as encompassing linguistic competence, culturally informed care, and lived experiences of specific disorders (e.g., depression, diabetes) or in specific communities (defined geographically, culturally, or by demographic characteristics). Yet in the global health arena, concerns have been raised regarding the WHO's *task shifting* guidelines.[18] Specifically, the concern is that they may not sufficiently address community embeddedness as a critical feature of CHWs; if so, it is likely that they favor medically oriented roles over socially oriented roles promoting justice and equity within communities.[20] Such concerns are echoed in the United States. As inexpensive members of health care teams, 70%-80% of whom are paid from temporary funding streams,[44] CHWs may hold marginalized positions that challenge their ability to promote health equity and social change within the communities to which they belong.[26] In this context, and with these risks in mind, future policy initiatives, intervention research projects, and theoretical works about mental health CHWs should explore the extent to which cultural embeddedness is a fundamental characteristic of their work, and should include CHWs in preparatory phases of intervention research using community-based participatory research methodologies.[45,46]

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