

# Interventions Engaging Community Health Workers to Prevent Diabetes

## Evidence Tables of Included Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Author(s):</b> Bazzano et al. 2009</p> <p><b>Location:</b> Los Angeles County</p> <p><b>Setting(s):</b> Community organization (state- and federally funded, nonprofit agency)</p> <p><b>Scale:</b> 806 clients screened for eligibility, 431 eligible, 85 signed up for intervention.</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Intervention Duration:</b> 7 months</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 4 <i>Sampling (1)</i> Bias in low recruitment rate for intervention participants (low uptake and attrition rate)</p> <p><i>Measurement (1)</i> Bias in self-reported outcomes</p> <p><i>Data Analysis (1)</i> Included those with diabetes without stratification-potential bias</p> <p><i>Other (1)</i> High loss-to-follow-up</p> <p><b>Funding:</b> California Department of Developmental Services</p> <p><b>Applicability:</b> Persons with developmental disabilities and risk for diabetes</p>	<p><b>Inclusion:</b> Adult clients of WRC who were higher-functioning, overweight/obese (BMI<math>\geq</math>25) and had an additional risk factor for developing diabetes or metabolic syndrome, or already had diabetes. Risk factors include hypertension, hyperlipidemia, family history of diabetes, history of heart problems, hyperglycemia, ethnicity (non-white) and being aged<math>&gt;</math>45 years.</p> <p><b>Exclusion:</b> NR</p> <p><b>Recruitment:</b> WRC clients recruited through chart review, presentations, flyers, mailed invitations</p> <p><b>Reported Baseline Demographics [Intervention Participants n=44]:</b> Age: 18-29: 11.4% 30-39: 20.5% 40-49: 43.2% 50-59: 25.0% Sex: Female 61.4% Race/ethnicity: White: 63.6% Black/AA (non-Latino): 20.5% Other: 15.9% Education: NR Low income: NR Medicaid/Medicare: NR No health insurance: NR Unemployed: NR</p> <p><b>Reported Risk Factors [Intervention Participants]:</b> Overweight: 36.4% Obese: 38.6% Extremely obese: 18.2%</p>	<p><b>CHW Activities:</b> 11 peer mentors recruited to participate in the design, and trained to deliver intervention; made reminder calls to participants, led physical activity sessions, prepared healthy snacks, helped facilitate review sessions and evaluation assessments.</p> <p><b>CHW Core Roles Met:</b> Bridging/cultural mediation between communities and the health and social services + Ensuring that clients get the services they needed + Providing culturally appropriate health education and information + Building individual and community capacity</p> <p><b>CHW Models of Care Met:</b> Member of care delivery team + Screening and health education provider + Organizer</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 11 CHW matched to population by: NR Payment: NR Educational background: NR Years of experience: NR Supervisor: NR CHW performance evaluation: NR Recruitment: Recruited through flyers, job advertisements, community presentations, referrals from WRC case managers and community organizations serving individuals with developmental disabilities Training: Peer mentors received training on health and fitness, leadership, and motivational strategies</p> <p><b>Other Provider(s):</b></p>	<p><b>Sample Size:</b> 806 clients screened for eligibility. Of 431 eligible clients, 85 signed up for the intervention, 68 attended at least an initial class, and 44 completed the 7-month intervention (35% attrition rate).</p> <p>Completion rate: 64%</p> <p><b>Weight-Related Outcomes:</b> Change in weight, lbs Baseline: 194.0 7 mo: 191.4 <b>Change in mean difference:</b> -2.6 lbs p=0.03</p> <p>Change in BMI, kg/m<sup>2</sup> Baseline: 33.3 7mo: 32.8 <b>Change in mean difference:</b> -0.5 kg/m<sup>2</sup> p=0.04</p> <p>Change in weight categories, % <i>Normal (&lt;25 kg/m<sup>2</sup>)</i> Baseline: 6.8 7mo: 11.4 <b>Change in mean difference:</b> 4.6%</p> <p><i>Overweight (<math>\geq</math>25 to &lt;30 kg/m<sup>2</sup>)</i> Baseline: 36.4 7mo: 34.1 <b>Change in mean difference:</b> 2.3%</p> <p><i>Obese (<math>\geq</math>30 to &lt;40 kg/m<sup>2</sup>)</i> Baseline: 38.6 7mo: 36.4 <b>Change in mean difference:</b> -2.2%</p> <p><i>Extremely obese</i> Baseline: 18.2 7mo: 18.2 <b>Change in mean difference:</b> 0 p-value (overall)<math>&lt;</math>0.0001</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p>Peer-led intervention Community-based participatory research</p>	<p>Developmental disability Autism: 15.9% Cerebral palsy: 18.2% Epilepsy: 13.6% Mental retardation: 68.2% Other: 25.0%</p>	<p>Mental health professionals, registered dietitian, physical and occupational therapists, physicians, nurses</p> <p><b>Other Provider(s) Activities:</b> Peer mentors modeled effective interactions during a physician visit, created exercise videos. Mental health professionals administered the Beck Depression Inventory questionnaire. Registered dietitian administered questionnaire about dietary intake. Physical and occupational therapists conducted fitness assessments.</p> <p><b>Community Partners Involved:</b> NA</p> <p><b>Comparison Group:</b> NA</p>	<p>Abdominal girth, in Baseline: 41.3 7mo: 40.4 <b>Change in mean difference:</b> -0.9 in p=0.005</p> <p><b>Additional Outcomes**:</b> PA + Nutrition</p> <p><b>Summary:</b> 7 mos trained peer-led diet and exercise program for developmentally disabled clients with or at risk for diabetes achieved small reductions in weight, increased PA, and small improvements in diet.</p>
<p><b>Author(s):</b> Cene et al. 2013 <b>Location:</b> North Carolina <b>Setting(s):</b> Churches and nonprofit community organization <b>Scale:</b> Study took place in churches and nonprofit organization, and curriculum led by 15 adult peer educators (Community Health Ambassadors, CHAs). Recruited 104 participants. <b>Design:</b> Before-after without comparison group <b>Intervention Duration:</b> 12 months <b>Quality of Execution:</b> Fair <b>Limitation(s):</b> 4 <i>Sampling (1)</i> High drop-out rate/loss to follow-up. Only less than 50% of participants attended ≥75% of sessions <i>Measurement (1)</i> Bias in self-reported outcomes <i>Data Analysis (1)</i></p>	<p><b>Inclusion:</b> AA males or females, age 21 and older, high risk for diabetes based on 7-item American Diabetes Associations’ risk calculator or self-reported diabetes, able to read and speak English <b>Exclusion:</b> &lt;18 yrs. of age OR pregnant <b>Recruitment:</b> NR <b>Reported Baseline Demographics [Intervention Participants n=104]:</b> Mean age: 57 Sex: Female 75% Race/ethnicity: Black/AA: 100% Education: &lt; H.S.: 27%; H.S./GED: 24%; More than H.S.: 49% Annual income: &lt;\$5000: 16% 5000-&lt;20000: 29% 20000-&lt;40000: 27% 40000-&lt;60000: 11% 60000-&lt;80000: 11% &gt;80000: 6% Medicaid/Medicare: NR No health insurance: NR Unemployed: NR</p>	<p><b>CHW Activities:</b> CHAs (n=15) delivered Power to Prevent (P2P) curriculum, led small groups through sessions using fat and calorie counter and food and activity tracker as key tools for facilitating behavior change. Curriculum consists of twelve 60-90 minute interactive sessions designed to encourage high-risk AA to use lifestyle modifications to prevent or delay onset of diabetes and encourage those with diabetes to learn skills to better control their blood glucose levels.</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate information and health education + Building individual and community capacity</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 15 CHW matched to population by: NR Payment: Each CHA who served as curriculum facilitator received \$100 stipend for their involvement Educational background: NR</p>	<p><b>Sample Size:</b> Out of 104 participants, 45 (43%) attended ≥75% of sessions. 30 participants had complete data for the pre- and post-curriculum questionnaire and baseline and 6-month BP, glucose, and weight/BMI. Completion rate: 28.8%</p> <p><b>Clinical Outcomes:</b> No significant changes in mean BP, random blood glucose, or weight/BMI from baseline to 6 mos</p> <p><b>Additional Outcomes**:</b> Knowledge +PA</p> <p><b>Summary:</b> Study saw significant improvements in diabetes knowledge and in impact of healthy eating and physical activity on diabetes prevention, but no improvements in blood glucose, weight, or physical activity outcomes (clinical).</p>

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Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p>Included those with diabetes without stratification or separate analysis-bias</p> <p><i>Other (1)</i> Potential bias in community-wide recruitment of clients</p> <p><b>Funding:</b> UNC</p> <p><b>Applicability:</b> African Americans Rural settings Females Faith-based settings</p>	<p><b>Reported Risk Factors [Intervention Participants]:</b> Self-reported diabetes: 46% High risk for diabetes (score≥10): 78%</p>	<p>Years of experience: All had health backgrounds (i.e. school nurse, health educator, nutritionist) Supervisor: NR CHW performance evaluation: NR Recruitment: NR Training: CHAs received specific training on P2P curriculum by academic partners (including a physician) and were further trained using Maxwell's 5 M training model in techniques to engage faith-based and community organizations in adopting and implementing health-promoting policy changes within their organization</p> <p><b>Other Provider(s):</b> NR</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> Pastor of large AA church, founder and director of a nonprofit community-based organization focused on nutrition and health education, community-based consulting company that facilitates collaborations between communities, school systems, and research universities.</p> <p><b>Comparison Group:</b> NA</p>	
<p><b>Author(s):</b> Mau et al. 2010</p> <p>Linked paper: Kaholokula 2014</p> <p><b>Location:</b> Hawai'i, USA</p> <p><b>Setting(s):</b> Community</p> <p><b>Scale:</b> 239 (64% of the 372) participants were enrolled n=169 analysis (# of settings and CHWs not reported)</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Intervention duration:</b> 12 weeks</p>	<p><b>Inclusion:</b> Self-identified Native Hawaiian, Filipino or other Pacific Islander ethnic background (e.g., Chuukese, a Pacific Islander ethnicity; Samoan); ≥18 years or older; overweight/ obese defined as BMI ≥ 25 kg/m<sup>2</sup> (for NHOPIs) or ≥ 23 kg/m<sup>2</sup> (for Filipinos); willing and able to follow a behavioral weight loss program that may involve 150 minutes of brisk walking per week (or equivalent) and a dietary regimen to induce weight loss of 1-2 lbs per week; identify at least 1 family member, friend, or co-worker to provide support throughout the study duration</p>	<p><b>CHW Activities:</b> Trained community peer educators delivered intervention to participants within 2 weeks of completing the baseline assessment. The first 4 lessons were offered weekly and the 4 remaining lessons delivered every 2 weeks for 2 months for a total of 12 weeks. Community peer educators totally delivered 8 sessions, materials were both culturally and linguistically appropriate for the NHOPi communities.</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate information and health education + Community and individual capacity</p>	<p><b>Sample Size:</b> Baseline n=239; 169 participants at 6 month follow-up Completion rate: 71%</p> <p><b>Weight-related Outcomes:</b> Change in body weight ,lbs</p> <p><b>Baseline</b> Intervention: 227.1 (66.1)</p> <p><b>3 month follow-up</b> Intervention: 222.7 (66.1)</p> <p><b>Change in mean difference:</b> -3.3 lbs p=NR</p> <p>Change in BMI (SD), kg/m<sup>2</sup> <b>Baseline: Mean (SD)</b> Intervention (n=169): 39.1 (9.4)</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 2 <i>Descriptions (1)</i> CHW intervention and demographics not adequately described</p> <p><i>Interpretation of results (1)</i> Attrition post-enrolment: 30% (70 dropouts out of 239), No ITT analysis</p> <p><b>Funding:</b> National Center on Minority Health and Health Disparities.</p> <p><b>Applicability:</b> CBPR-based Native Hawaiians (NHs) and Other Pacific Islanders (OPIs) women</p>	<p><b>Exclusion:</b> NR</p> <p><b>Recruitment:</b> Eligibility screenings were conducted by the CIs over a 3-month period to identify potential volunteers for enrollment. Intervention participants were recruited at each site using flyers posted at the community sites, articles in newsletters, word-of-mouth and flyers handed out to clients/community members as they came into the community organizations for services or activities. All sites enrolled 6-12 participants at a time prior to starting each 8-lesson, group intervention program. Participants with comorbid conditions (i.e. diabetes, hypertension, etc) were advised to obtain approval from their primary care provider prior to participating.</p> <p><b>Reported Baseline Demographics [Intervention Participants n=239]:</b>                      Mean age (SD): 49 (14)                      Sex: Female 83%                      Race/ethnicity:                      Chuukese 27%                      Filipino 5%                      Native Hawaiian 52%                      Samoan 12%                      Other Pacific Islander 1%                      Non-Pacific Islander 2%                      Low income: NR                      Education:                      &gt;HS 24%                      HS diploma/GED 25%                      Some college/Tech 29%                      College degree 22%                      Medicaid/Medicare: NR                      No health insurance: NR                      Unemployed: NR</p> <p><b>Reported Risk Factors [Intervention Participants]:</b></p>	<p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b>                      # CHWs involved in intervention: NR                      CHW matched to population by: NR                      Payment: NR                      Education: NR                      Years of experience: NR                      Supervisor: NR                      CHW performance evaluation: NR                      Recruitment: NR                      Training: NR</p> <p><b>Other provider(s):</b> NA</p> <p><b>Other provider(s) activities:</b> NA</p> <p><b>Community Partners Involved:</b>                      Community health centers (CHC): Kokua Kalihi Valley Family Comprehensive Services and Kalihi-Pālama Health Center; Native Hawaiian health care system: Ke Ola Mamo; Grassroots organizations: Kula no nā Po'e Hawai'i, a Hawaiian Homestead organization, and Hawai'i Maoli of the Association of Hawaiian Civic Clubs                      CBPR approach: Academic partners were researchers from the Department of Native Hawaiian Health at the John A. Burns School of Medicine of the University of Hawai'i.</p>	<p><b>3 month follow-up</b>                      Intervention (n=169): 38.5 (9.2)  <b>Change in mean difference</b> (95% CI): -0.58 kg/m<sup>2</sup> (-0.78, -0.38)</p> <p><b>CVD Risk Factors</b>                      Change in SBP (SD), mmHg  <b>Baseline</b>                      Intervention (n=169): 134 (23)  <b>3 month follow-up</b>                      Intervention (n=169): 128 (20)  <b>Change in mean difference</b> (95% CI): -6.0 mmHg (-8.8, -3.5)                      p=NR</p> <p>Change in DBP (SD), mmHg  <b>Baseline</b>                      Intervention (n=169): 82 (13)  <b>3 month follow-up</b>                      Intervention (n=169): 79 (12)                      Change in mean difference (95% CI) = -2.8 mmHg (-4.4, -1.3)                      p=NR</p> <p><b>Additional Outcomes**:</b>                      PA + Nutrition</p> <p><b>Summary:</b> A peer educator-delivered intervention found mean weight loss among participants who completed all 8 lessons at 12 weeks to be significantly higher than participants who completed less than 8 lessons. This pilot study demonstrates that weight loss in high risk minority populations can be achieved over a short period of time using CBPR approaches.</p>

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Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Author(s):</b> O'Brien et al. 2015</p> <p><b>Location:</b> Philadelphia, PA</p> <p><b>Setting(s):</b> Community-based</p> <p><b>Scale:</b> Enrolled participants n=20, CHW/promotoras n=2, settings n=2 community-based</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Suitability of Design:</b> Least</p> <p><b>Intervention Duration:</b> 12 mos</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 2 <i>Sampling (1)</i> Small sample size (n=20)</p> <p><i>Other (1)</i> Selection bias: convenience sample</p> <p><b>Funding:</b> National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health</p> <p><b>Applicability:</b> Latino adults with prediabetes</p>	<p>High blood pressure: 38% Diabetes: 26% Heart disease: 5% Kidney problem: 2%</p> <p><b>Inclusion:</b> Latina ethnicity; Spanish language fluency; ≥20 y.o., BMI ≥25 kg/m<sup>2</sup>. In addition, all participants were required to have prediabetes, defined according to the most recent ADA criteria: fasting plasma glucose from 100 to 125 mg/dL and/or hemoglobin A1C from 5.7-6.4%</p> <p>American Diabetes Association's (ADA) 7-item Diabetes Risk Assessment Questionnaire. Those with an ADA risk score of 5 or greater underwent fasting lab work.</p> <p><b>Exclusion:</b> Current or planned pregnancy during the study period, diabetes at baseline, chronic conditions that could affect ability to participate (eg, uncontrolled CVD, pulmonary disease with oxygen dependence, or arthritis limiting regular physical activity), medical comorbidities that could influence body weight (eg, HIV, cancer, or uncontrolled thyroid disease), and medications that could affect weight or glucose metabolism</p> <p><b>Recruitment:</b> Health fairs conducted by Latino-serving nonprofit organizations and community gatherings held at a local churches along with 2 primary care clinics serving the target population.</p> <p><b>Reported Baseline Demographics [Intervention Participants n=20]:</b> Mean age (SD): 44.5 (13.0) Sex: Female 100% Race/ethnicity: Hispanic/Latino: 100%</p>	<p><b>CHW Activities:</b> CHWs delivered information in a year-long, PL-DPP program included 24 sessions with the first 14 sessions delivered weekly. All sessions were conducted in Spanish. Each session was led by 1 promotora, with another promotora serving as an assistant.</p> <p>From CHWs, participants received self-monitoring materials also used in the original DPP, such as self-monitoring log books, pocket handbooks providing information about the fat and calorie content of common foods, measuring cups for cooking, a scale for weighing themselves, and a pedometer for monitoring daily steps.</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate information and health education + Providing informal counseling and social support</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 2 CHW matched to population by: Language Payment: NR Education: High school education Years of experience: Worked with the investigative team for 8 years and conducted several group-based lifestyle interventions prior to implementing PL-DPP. Supervisor: Delivered all 24 PL-DPP sessions to members of the investigative team who supervised them and gave feedback before implementing the study protocol with participants. CHW performance evaluation: Sessions attended by 1 of the authors (V.A.A.), who</p>	<p><b>Sample size:</b> Enrolled 20 participants; 19 remained at 12 month follow up. Completion rate 95%.</p> <p><b>Weight-Related Outcomes:</b> Change in weight (SD), lbs <b>Baseline</b> Intervention (n=20): 195.5 (47.3) <b>12 month follow-up</b> Intervention (n=19): 184.7 (46.7) <b>Change in mean difference (95% CI):</b> -10.8 lbs (-5.6, -16.0) p&lt;0.001</p> <p>Change in BMI (SD), kg/m<sup>2</sup> <b>Baseline</b> Intervention (n=20): 36.5 (7.6) <b>12 month follow-up</b> Intervention (n=19): 34.6 (8.0) <b>Change in mean difference (95% CI):</b> -1.9 kg/m<sup>2</sup> (-1.0, -2.9) p&lt;.001</p> <p>Change in waist circumference, in <b>Baseline</b> Intervention (n=20): 41.1 (5.2) <b>12 month follow-up</b> Intervention (n=19): 39.4 (5.6) Change in mean difference (95% CI): -1.7 in (-0.9, -2.5) p&lt;.001</p> <p><b>Glycemic Outcomes:</b> Change in HbA1c (SD), % <b>Baseline</b> Intervention (n=20): 5.8 (0.2) <b>12 month follow-up</b> Intervention (n=19): 5.7 (0.5) <b>Change in mean difference (95% CI):</b> -0.1% (-0.3, 0.2) p=0.70</p> <p>Change in fasting glucose (SD), mg/dL</p>

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Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
	<p>Education (mean years SD): 10.8 (3.9)                      Household income (mean dollars SD): 16, 271 (7061)                      Medicare/Medicaid: NR                      No health insurance: 70%                      Unemployed: 60%</p> <p><b>Reported Risk Factors [Intervention Participants]:</b>                      Family history of diabetes: 55%                      Personal history of gestational diabetes: 25%                      Diabetes: 0%</p>	<p>ensured fidelity to the GLB protocol by confirming that all of the content in each participant handout was covered; participant feedback about the Promotora-Led Diabetes Prevention Program                      Recruitment: Nonprofit partners serving the target population helped identify individuals with who were then interviewed by members of the study team to determine their suitability                      Training: 18 hours of training from local and national diabetes prevention experts, including 1 of the developers of the GLB curriculum</p> <p><b>Other Provider(s):</b> NA  <b>Other Provider(s) Activities:</b> NA  <b>Community Partners Involved:</b> NR</p>	<p><b>Baseline</b>                      Intervention (n=20): 95.4 (12.7)  <b>12 month follow-up</b>                      Intervention (n=19): 93.0 (8.1)  <b>Change in mean difference (95% CI):</b>                      -2.4 mg/dL (-8.5, 3.8)                      p=0.43</p> <p>Change in insulin, <math>\mu</math>IU/mL  <b>Baseline</b>                      Intervention (n=20): 11.3 (9.6)  <b>12 month follow-up</b>                      Intervention (n=19): 8.2 (7.6)  <b>Change in mean difference (95% CI):</b>                      -3.1 <math>\mu</math>IU/mL (-4.9, -1.2)                      p=0.003</p> <p><b>CVD Risk Factors</b>                      HDL cholesterol (SD), mg/dL  <b>Baseline</b>                      Intervention (n=20): 45.5 (9.0)  <b>12 month follow-up</b>                      Intervention (n=19): 46.5 (9.7)  <b>Change in mean difference (95% CI):</b>                      1.0 mg/dL (-1.3, 3.3)                      p=0.38</p> <p>Change in total cholesterol (SD), mg/dL  <b>Baseline</b>                      Intervention (n=20): 178.9 (41.9)  <b>12 months follow-up</b>                      Intervention (n=19): 170.8 (44.9)  <b>Change in mean difference (95% CI):</b>                      -8.1 mg/dL (-19.2, 3.0)                      p=0.14</p> <p>Change in LDL cholesterol (SD), mg/dL  <b>Baseline</b>                      Intervention (n=20): 108.0 (39.1)  <b>12 month follow-up</b>                      Intervention (n=19): 98.8 (30.7)  <b>Change in mean difference (95% CI):</b>                      -9.2 mg/dL (-16.1, -2.2)                      p=0.01</p> <p>Change in triglycerides (SD), mg/dL  <b>Baseline</b>                      Intervention (n=20): 131.9 (87.9)</p>

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			<p><b>12 month follow-up</b> Intervention (n=19): 135.7 (103.9) <b>Change in mean difference</b> (95% CI): 3.8 mg/dL (-34.8, 42.4) p=0.84</p> <p>Change in SBP (SD), mmHg <b>Baseline</b> Intervention (n=20): 114.1 (17.0) <b>12 month follow-up</b> Intervention (n=19): 110.3 (16.2) <b>Change in mean difference</b> (95% CI): -3.8 mmHg (-9.2, 1.5) p=0.15</p> <p>Change in DBP (SD), mmHg <b>Baseline</b> Intervention (n=20): 74.7 (9.0) <b>12 month follow-up</b> Intervention (n=19): 68.5 (9.5) <b>Change in mean difference</b> (95% CI): -6.2 mmHg (-3.4, -8.9) p&lt;0.001</p> <p><b>Additional Outcomes**:</b> Health literacy, health-related quality of life, perceived social support, perceived stress, depression, anxiety</p> <p><b>Summary:</b> Favorable reductions were seen from baseline to 12 months for mean change in body weight, waist circumference, diastolic blood pressure, LDL cholesterol, and fasting insulin levels which was statistically significant in the Latina population.</p>
<p><b>Author(s):</b> Philis-Tsimikas et al. 2014 <b>Location:</b> California <b>Setting(s):</b> Primary care (Federally Qualified Health Centers) <b>Scale:</b> Single-group pre-post design. Study conducted at 1 federally qualified health center. Of the 192 women screened for eligibility, 102 provided</p>	<p><b>Inclusion:</b> 18-45 y.o.; Latina; gestational diabetes mellitus within last 3 yrs <b>Exclusion:</b> Women with type 2 diabetes who were pregnant and/or who had serious health condition that precluded participation in intervention</p>	<p><b>CHW Activities:</b> Educators delivered education classes following Dulce Mothers curriculum for 8 weeks, topics included healthful eating, dietary fats, physical activity, social and environmental cues, problem-solving, healthy eating out, coping with negative thoughts, and emotions, motivation, and maintenance and setbacks; monthly maintenance and support sessions were also provided by trained educators.</p>	<p><b>Sample Size:</b> 192 prescreened for eligibility, 102 provided informed consent and completed screening laboratory visit. Initial sample of 91, final analytic sample of 84. Baseline n=84; month 6 n=80. Completion rate=92.3%</p> <p><b>Weight-Related Outcomes:</b> Change in average weight (SD), lbs Baseline: 152.52 (31.57)</p>

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\*\* Health behavior outcomes provided in Appendix (below)

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p>informed consent and completed laboratory visit. Initial sample of 91, final analytic sample of 84.</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Intervention Duration:</b> 2hr 8-week weekly education classes with 6 month follow-up</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 3 <i>Measurement (1)</i> Did not report range/scale for self-reported outcomes (e.g. overall perceived health, fatalism...)</p> <p><i>Interpretation of results (2)</i> Selection bias</p> <p>Possible confounding not controlled for (medication use was not monitored which may have been a potential source of bias)</p> <p><b>Funding:</b> NIH/NCATS</p> <p><b>Applicability:</b> Adult Hispanic females</p>	<p><b>Recruitment:</b> Recruited through provider referrals, medical chart reviews, clinic flyers from northern San Diego County FQHC, which serves large, well-established (primarily) Latino population</p> <p><b>Reported Baseline Demographics [Intervention Participants n=84]:</b> Mean age (SD): 31.93 (5.35) Sex: Female 100% Race/ethnicity: 100% Hispanic Education: &gt;HS: 71.4% HS graduate: 28.6% (&gt;=some HS) Low income: 91.6% as &lt;\$24,000/yr (based on 2012 poverty guidelines for family of 4, \$23,050) Medicaid/Medicare: NR No health insurance: 81.0% Unemployed: 15.5% employed outside the home</p> <p><b>Reported Risk Factors [Intervention Participants]:</b> BMI (SD): 29.09 (5.10) kg/m<sup>2</sup> Gestational diabetes: 100% (within past 3 yrs of enrollment)</p>	<p><b>CHW Core Roles Met:</b> Providing culturally appropriate and accessible health education and information + Building individual and community capacity</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: NR CHW matched to population by: Language (Spanish) + Race/ethnicity Payment: Compensated for their time, amount NR Educational background: NR Years of experience: NR Supervisor: Masters level program supervisor employed by health system to oversee community programs and research CHW performance evaluation: Masters level program supervisor; ensured CHWs adhere to curriculum and to health system policies Recruitment: NR Training: In-depth standardized training in curriculum and group facilitation methods (didactic lecture, practice teaching, role playing)</p> <p><b>Other Provider(s):</b> NR</p> <p><b>Other Provider(s) Activities:</b> NR</p> <p><b>Community Partners Involved:</b> NR</p> <p><b>Comparison Group:</b> NA</p>	<p>6 mo: 153.67 (32.45) Absolute change: 1.15 lbs Relative change: 0.75% p=0.26</p> <p>Change in average BMI (SD), kg/m<sup>2</sup> Baseline: 29.09 (5.1) 6 mo: 29.28 (5.57) Absolute change: 0.19 kg/m<sup>2</sup> Relative change: 0.65% p=0.21</p> <p><b>Glycemic Outcomes:</b> Change in A1c (SD), % Baseline: 5.73 (0.31) 6 mo: 5.82 (0.36) Absolute change: 0.09 % Relative change: 1.6% p=0.02</p> <p>Diabetes incidence across 6-month follow-up period (SD) Baseline: 0 (NR) 6 mo: 3 (NR) Absolute change: 3 pct pts Relative change: NA p=NR</p> <p><b>CVD Risk Factors:</b> Change in avg SBP (SD), mmHg Baseline: 107.48 (11.09) 6 mo: 109.15 (10.34) Absolute change: 1.67 mmHg Relative change: 1.6% p=0.26</p> <p>Change in avg DBP (SD), mmHg Baseline: 70.34 (8.24) 6 mo: 68.84 (8.72) Absolute change: -1.5 mmHg Relative change: -2.1% p=0.03</p> <p>Change in avg total cholesterol (SD), mg/dL Baseline: 180.14 (39.68) 6 mo: 169.94 (34.09) Absolute change: -10.2 mg/dL</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)



Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
			<p>Relative change: -5.7% p&lt;0.001</p> <p>Change in avg LDL (SD), mg/dL Baseline: 107.77 (30.78) 6 mo: 100.43 (26.94) Absolute change: -7.34 mg/dL Relative change: -6.8% p=0.001</p> <p>Change in avg HDL (SD), mg/dL Baseline: 48.39 (11.96) 6 mo: 47.49 (10.63) Absolute change: -0.9 mg/dL Relative change: -1.9% p=0.28</p> <p>Change in avg triglycerides (SD), mg/dL Baseline: 124.04 (71.76) 6 mo: 110.26 (53.66) Absolute change: -13.78 mg/dL Relative change: -11.1% p=0.005</p> <p><b>Additional Outcomes**:</b> PA + Nutrition</p> <p><b>Summary:</b> Peer-led group intervention, tailored for Latino women with a history of gestational diabetes showed significant improvements in lipids, blood pressure, physical activity, dietary fat intake, and fatalistic and cultural beliefs.</p>
<p><b>Author(s):</b> Ruggiero et al. 2011</p> <p><b>Location:</b> Chicago, Illinois</p> <p><b>Setting(s):</b> Holy Cross Hospital in Chicago, cultural center, local hospital</p> <p><b>Scale:</b> Study conducted at local hospital. Of the 1162 assessed at 20 study-sponsored screenings during 13-mo recruitment period, 367 referred to be screened for project eligibility, 244 eligible, 120 interested in participating, 69 consented (57.5%) and enrolled.</p>	<p><b>Inclusion:</b> 18-65 y.o. from study community; BMI&gt;24.9 (overweight); self-identified as Latino; living in targeted community</p> <p><b>Exclusion:</b> Current diabetes dx or possible diabetes based on screening results (ADA); BMI &lt;24.9; pregnant or planning to become pregnant during study; reported medical restrictions related to program dietary and physical activity goals</p>	<p><b>CHW Activities:</b> Intervention delivered in Spanish; provided participants with program materials in Spanish, with supplemental culturally appropriate educational materials, self-monitoring tools, pedometer, body weight scale, measuring cups. Emphasized walking as a community-based strategy for PA. Small group format in community settings</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate and accessible health education and information + Building individual and community capacity</p>	<p><b>Sample Size:</b> 367 referred to be screened for project eligibility, 244 eligible to participate, 120 interested in participating, and 69 (57.5%) consented and enrolled in the intervention study). Follow-up data were obtained for 45 participants at 6 months and 57 participants at 12 months for a response rate of 65% and 83% respectively.</p> <p>Completion rate: 83%</p> <p><b>Weight-Related Outcomes:</b></p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Design:</b> Before-after without comparison</p> <p><b>Intervention Duration:</b> Delivered in small group format including 8 grps with avg grp size=9 participants. Weekly sessions for 6 mo, monthly sessions for “after-core” program. 1 yr intervention, f/u at end of 1 yr</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s): 3</b>  <i>Description of intervention (1)</i>                      Poor intervention description. Frequency and duration of visits not well-described</p> <p><i>Interpretation of results (2)</i>                      Self-selection bias</p> <p>Retention/attendance issues (attendance for all sessions &lt;80%)</p> <p><b>Funding:</b> Part of Illinois Prevention Research Centers supported by Cooperative Agreement from US CDC including support from Division of Diabetes Translation</p> <p><b>Applicability:</b> Latino adult population</p>	<p><b>Recruitment:</b> Recruited during free health screenings conducted in partnership with National Kidney Foundation of Illinois. Nurse practitioner provided interpretation of screening results, referred to clinic when appropriate. Nurse practitioner referred those eligible to research project staff</p> <p><b>Reported Baseline Demographics [Intervention Participants n=69]:</b>                      Mean age (SD): 37.86 (8.5)                      Sex: Female 92.8%                      Race/ethnicity: 100% Hispanic                      Education:                      HS graduate: 40.5% (≥some HS)                      Low income: NR                      Medicaid/Medicare: NR                      No health insurance: 40.6% have health insurance (didn’t specify what type)                      Unemployed: 24.6% employed (unclear full-time, part-time...)</p> <p><b>Reported Risk Factors [Intervention Participants]:</b>                      BMI (SD): 31.19 (4.34) kg/m<sup>2</sup>                      Mean weight (SD): 172.16 (26.09) lbs                      Body fat (SD): 39.64 (6.27) %</p>	<p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b>                      # CHWs involved in intervention: NR                      CHW matched to population by: Location (CHW was a community resident)                      Payment: NR                      Educational background: NR                      Years of experience: Prior to this study, CHW delivered 1-yr Vanguard group and was routinely observed and provided with ongoing supervision and support in delivering the program.                      Supervisor: NR. Ongoing supervision, NR by who                      CHW performance evaluation: Masters level program supervisor; ensured CHWs adhere to curriculum and to health system policies                      Recruitment: NR                      Training: In-depth standardized training in curriculum and group facilitation methods (didactic lecture, practice teaching, role playing)</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> National Kidney Foundation of Illinois</p> <p><b>Comparison Group:</b> NA</p>	<p>Change in average weight from baseline, lbs                      Baseline: NR                      12 mo (n=57): -2.8 (11.2)                      Absolute change: -2.8 lbs                      p=0.0649</p> <p>Change in average BMI from baseline (SD), kg/m<sup>2</sup>                      Baseline: NR                      12 mo (n=57): -0.5 (2.03)                      Absolute change: -0.5 kg/m<sup>2</sup>                      p=0.0665</p> <p>Change in waist circumference from baseline (SD), in                      Baseline: NR                      12 mo (n=55): -1.38 (2.44)                      Absolute change: -1.38 in                      p=0.001</p> <p>Proportion achieving 7% weight loss goal, %                      Baseline: 0                      12 mo (n=57): 16                      Absolute change: +16 pct pts                      p=NA</p> <p><b>Glycemic Outcomes:</b>                      NR</p> <p><b>CVD Risk Factors:</b>                      NR</p> <p><b>Additional Outcomes**:</b>                      PA + Nutrition</p> <p><b>Summary:</b> CHW-delivered a community-based version of the Diabetes Prevention Program’s clinic-based lifestyle intervention found statistically significant improvements in waist circumference and various dietary habits (i.e. low-fat/non-fat substitution, meat modification, avoidance of frying and fat, and replacement with fruits and vegetables), and decrease in time sitting.</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Author(s):</b> Schwartz et al. 2013</p> <p><b>Location:</b> Idaho</p> <p><b>Setting(s):</b> NR</p> <p><b>Scale:</b> Community; baseline 477 participants, 3 mo f/u 450</p> <p><b>Design:</b> Before-after without comparison</p> <p><b>Intervention Duration:</b> 3 mos (12 wks)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 2 <i>Description of intervention (1)</i> Poor intervention description</p> <p><i>Interpretation of results (1)</i> Diabetes population included in sample (and analysis without stratification)</p> <p><b>Funding:</b> NIH Minority Health and Health Disparities grant</p> <p><b>Applicability:</b> Hispanic population</p>	<p><b>Inclusion:</b> Resident of Weiser and Mountain Home communities + Hispanic</p> <p><b>Exclusion:</b> NR</p> <p><b>Recruitment:</b> Recruited from Weiser and Mountain Home communities (recruited by going to every third house), with only Hispanic residents selected for enrollment into study</p> <p><b>Reported Baseline Demographics [Intervention Participants n=477]:</b> Median age: 40 (range 18-84) Sex: Female 61.4% Race/ethnicity: 100% Hispanic Education: None: 3% 1-6<sup>th</sup> grade: 32.9% 7-12<sup>th</sup> grade: 54.3% Some college: 8.9% Undergrad degree: 0.9% Low income: NR Medicaid/Medicare: NR No health insurance: NR Unemployed: NR</p> <p><b>Reported Risk Factors [Intervention Participants]:</b> NR</p>	<p><b>CHW Activities:</b> CHWs conducted enrollment visit; facilitated pre-labs and clinician review; conducted eight weekly grp sessions; weekly home visits; follow-up visit; post-labs; clinician review; graduation</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate and accessible health education and information + Building individual and community capacity</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 4 CHW matched to population by: <b>Race/ethnicity + Location</b> Payment: NR Educational background: At least a HS diploma or GED Years of experience: NR Supervisor: NR. CHW performance evaluation: NR Recruitment: Must live in community; have HS diploma or GED; be bilingual in Spanish and English; have automobile and car insurance Training: NR</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> Marshfield Clinic Research Foundation; Idaho Commission for Hispanic Affairs; Mountain States Group</p> <p><b>Comparison Group:</b> NA</p>	<p><b>Sample Size:</b> Of 477 participants, 450 completed program from pre to post in its entirety</p> <p>Completion rate: 94% Baseline: n=450 3 mos: n=450</p> <p><b>Weight-Related Outcomes:</b> Change in average weight, lbs Baseline: 179.76 3 mos: 176.86 Absolute change: -0.52 lbs Relative change: -0.02% p&lt;0.000</p> <p>Change in average BMI, kg/m<sup>2</sup> Baseline: 31.71 3 mos: 31.19 Absolute change: -0.52 kg/m<sup>2</sup> Relative change: -0.02% p&lt;0.000</p> <p>Change in waist circumference, in Baseline: 39.29 3 mos: 38.39 Absolute change: -0.9 in Relative change 2.3% p&lt;0.000</p> <p><b>Glycemic Outcomes:</b> Change in HbA1c, % Baseline: 6.1 3 mos: 5.87 Absolute change: -0.23 pct pts Relative change; 3.8% p&lt;0.000</p> <p>Change in blood glucose, mg/dL Baseline: 109.15 3 mos: 102.32 Absolute change: -6.83 mg/dL Relative change: 6.4% p&lt;0.00</p> <p><b>CVD Risk Factors:</b> Change in DBP, mg/dL Baseline: 79.82</p>

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\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
			<p>3 mos: 77.84                      Absolute change: -1.98 md/dL                      Relative change: 2.5%                      p&lt;0.000</p> <p>Change in SBP, mg/dL                      Baseline: 125.19                      3 mos: 121.61                      Absolute change: -3.58 mg/dL                      Relative change: 2.9%                      p&lt;0.000</p> <p>Change in total cholesterol, mg/dL                      Baseline: 181.77                      3 mos: 177.51                      Absolute change: -4.26 mg/dL                      Relative change: 2.3%                      p=0.002</p> <p>Change in LDL cholesterol, mg/dL                      Baseline: 107.25                      3 mos: 103.97                      Absolute change: -3.28 mg/dL                      Relative change: 2.3%                      P&lt;0.01</p> <p>Change in HDL cholesterol, mg/dL                      Baseline: 43.58                      3 mos: 43.23                      Absolute change: -0.35 mg/dL                      Relative change: 0.8%                      p=0.341</p> <p><b>Additional Outcomes**:</b>                      PA + Nutrition</p> <p><b>Summary:</b> CHW-delivered lifestyle program among Hispanics showed improvement in physiologic, nutrition-related, and physical activity indicators. From pre- to post-data, measurements significantly improved in weight, BMI, waist circumference, DBP, SBP, total cholesterol, LDL cholesterol, glucose, and A1c.</p>
<b>Author(s):</b> Shaibi et al. 2012	<b>Inclusion:</b> 14-16 y.o.; BMI percentile ≥85th for age and gender;	<b>CHW Activities:</b> CHWs conducted 12 wkly education sessions delivered in group	<b>Sample Size:</b>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Location:</b> Arizona</p> <p><b>Setting(s):</b> YMCA (lifestyle education classes)</p> <p><b>Scale:</b> Community; 15 participants</p> <p><b>Design:</b> Before-after without comparison</p> <p><b>Intervention Duration:</b> 3 mos (12 wks)</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 2</p> <p><i>Description of intervention (1)</i> Lack of demographic data</p> <p><i>Sampling (1)</i> Small sample size (n=15)</p> <p><b>Funding:</b> University Southwest Interdisciplinary Research Center through grant from NIH, National Center on Minority Health and Health Disparities</p> <p><b>Applicability:</b> High-risk Latino youth, Community setting (not school-based)</p>	<p>Latino ethnicity (child and parent self-report)</p> <p><b>Exclusion:</b> Participated in weight management program during previous 6 mos prior to enrollment; taking medications or dx'ed with condition known to influence carbohydrate metabolism or cognitive fxn; were type 2 diabetic upon screening</p> <p><b>Recruitment:</b> Recruited from community clinic through established network of schools and school-based health centers</p> <p><b>Reported Baseline Demographics [Intervention Participants n=15]:</b> Median age (SD): 15.0 (0.9) Sex: Female 50% (n=18) Race/ethnicity: 100% Hispanic Education: NR Low income: NR Medicaid/Medicare: NR No health insurance: NR Unemployed: NR</p> <p><b>Reported Risk Factors [Intervention Participants]:</b> BMI (SE): 32.5 (1.6) kg/m<sup>2</sup></p>	<p>setting by bilingual/bicultural promotoras; led three 60-min PA sessions/wk (included individual and grp activities)</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate and accessible health education and information + Providing informal counseling and social support + Building individual and community capacity</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 2 CHW matched to population by: Race/ethnicity + Language Payment: NR Educational background: NR Years of experience: NR Supervisor: NR. CHW performance evaluation: NR Recruitment: NR Training: NR</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> Employed community-based participatory research methods; partners involved: metropolitan YMCA staff, Arizona State University Clinical Research Unit</p> <p><b>Comparison Group:</b> NA</p>	<p>Of 18 eligible participants, 15 completed analysis</p> <p>Completion rate: 83%</p> <p><b>Weight-Related Outcomes:</b> Change in average weight (SD), lbs Baseline: 199.7 (15.0) 3 mos: 198.2 (15.9) Absolute change: -1.5 lbs Relative change: -0.75% p=0.44</p> <p>Change in average BMI (SD), kg/m<sup>2</sup> Baseline: 32.5 (1.6) 3 mos: 32.0 (1.7) Absolute change: -0.5 kg/m<sup>2</sup> Relative change: -1.5% p=0.06</p> <p>Change in waist circumference, in Baseline: 42.1 (1.7) 3 mos: 40.6 (2.0) Absolute change: -1.5 kg/m<sup>2</sup> Relative change: -3.6% p=0.01</p> <p><b>Glycemic Outcomes:</b> Glucose Outcomes Fasting glucose: No change 2-hr glucose: -10.8%; p&lt;0.01 2-hr insulin: -23.6%; p&lt;0.01 Insulin: -25.5; p&lt;0.01</p> <p><b>CVD Risk Factors:</b> NA</p> <p><b>Additional Outcomes**:</b> PA + Nutrition</p> <p><b>Summary:</b> CHW-delivered community-based lifestyle and exercise program for Hispanic adolescents found significant improvements in insulin sensitivity, waist circumference, cardio-respiratory fitness, physical inactivity, and dietary fat intake. Fasting glucose, fasting insulin, BMI and fruit and vegetables</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Author(s):</b> Staten et al. 2005</p> <p><b>Location:</b> Arizona</p> <p><b>Setting(s):</b> Public locations including schools, churches, the MCHC, and other public multipurpose rooms</p> <p><b>Scale:</b> 248 participants began program, 216 completed</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Intervention Duration:</b> 3 mos (12 wks). Classes offered year round. Group size avg 10-15 participants</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 2 <i>Interpretation of results (1)</i> Included those with diabetes without stratification-potential bias</p> <p><i>Sampling (1)</i> Potential bias in community-wide recruitment of clients (convenience sample)</p> <p><b>Funding:</b> Centers for Disease Control and Prevention</p> <p><b>Applicability:</b> Hispanic adults Older adults in Community settings.</p>	<p><b>Inclusion:</b> Convenience sample recruitment; physically able to participate w/o any serious physical or medical risk; included those with diabetes</p> <p><b>Exclusion:</b> NR</p> <p><b>Recruitment:</b> By CHWs through presentations at schools, church groups, internal agency programs, health fairs, door-to-door.</p> <p><b>Reported Baseline Demographics [Intervention Participants n=216]:</b> Mean age: 49.6 Sex: Female 91.2% Race/ethnicity: Hispanic: 99.5% Education: Some elementary: 52.8% Elementary: 24.1% Some HS: 15.3% HS: 6.5% Medicaid/Medicare: NR No health insurance: 53.2% Unemployed: 83.3%</p> <p><b>Reported Risk Factors [Intervention Participants]:</b> Diagnosed with diabetes (%): 45 (20.8%) Family diagnosed with diabetes (%): 107 (49.5%)</p>	<p><b>CHW Activities:</b> CHWs (promotores) conducted weekly classroom sessions (12 two-hr sessions, ranging from 90-150 min) in pairs; led walking club outside of class for at least 20 min once/wk. At week 7 promotores start to withdraw from walking grps but continue to encourage them during class sessions</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate and accessible health education and information + Providing informal counseling and social support + Building individual and community capacity + Bridging/cultural mediation between communities and the health and social services</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 11 CHW matched to population by: Race/ethnicity + Language Payment: NR Educational background: NR Years of experience: NR Supervisor: NR. CHW performance evaluation: University of Arizona personnel contributed feedback on promotora presentation of material on effective communication styles Recruitment: Mariposa Community Health Center (MCHC) and Western Arizona Health Education Center (WAHEC) hired/reorganized existing promotores to participate Training: 6 hrs of manual training; encouraged but not required to use script with emphasis placed on content and flow of each session; week-long trainings for Su Corazón, Su Vida; Diabetes: La Comunidad en Accion, sponsored by the Diabetes Today National Training Center and</p>	<p>consumption did not significantly improve.</p> <p><b>Sample Size:</b> Of the 248 initial participants, 216 completed intervention.</p> <p>Completion rate: 87%</p> <p><b>Weight-Related Outcomes:</b> NA</p> <p><b>Glycemic Outcomes:</b> NA</p> <p><b>CVD Risk Factors:</b> NA</p> <p><b>Additional Outcomes**:</b> PA + Nutrition</p> <p><b>Summary:</b> CHW-delivered community-based lifestyle and exercise program for Hispanic adults found significant increase in the number of participants walking and number of minutes per week of moderate to vigorous walking, significant reductions in weekly consumption of sweetened soda and sweetened hot drinks and an increase in consumption of fruit juice. The number of servings of salads, vegetables, and fruits eaten per week also increased significantly.</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
		<p>Diabetes Training for Lay Health Workers, sponsored by MCHC</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> Border Health iSI! Is partnership and collaboration between community partners, university personnel and promotores. Partners include Mariposa Community Health Center (MCHC) in Nogales, Ariz, and Regional Center for Border Health/Western Arizona Health Education Center (WAHEC) in Somerton, Ariz, with technical assistance from the University of Arizona (UA).</p> <p><b>Comparison Group:</b> NA</p>	
<p><b>Author(s):</b> Tang et al. 2014</p> <p><b>Location:</b> Ann Arbor, Michigan</p> <p><b>Setting(s):</b> Churches</p> <p><b>Scale:</b> 13 eligible, 11 completed study in church-based intervention</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Intervention Duration:</b> 5 mos (20 wks) in total. 2 mos core, 3 mos telephone f/u</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 2</p> <p><i>Sampling (1)</i> Small sample size (n=11)</p> <p><i>Other (1)</i> Convenience sample collected from local church where individuals self-select into intervention if eligible</p>	<p><b>Inclusion:</b> Adult member or affiliate member of church; score <math>\geq 10</math> on the ADA diabetes risk assessment; have a BMI of <math>\geq 25</math> kg/m<sup>2</sup></p> <p><b>Exclusion:</b> Have existing dx of diabetes; be unable to participate in 20-wk intervention</p> <p><b>Recruitment:</b> Church pastor announced launch of study; add'l recruitment strategies employed e.g. mailing flyers to church members, posting announcements in weekly church bulletins.</p> <p><b>Reported Baseline Demographics [Intervention Participants n=104]:</b>                      Mean age (SD): 60 (12)                      Sex: Female 73%                      Race/ethnicity:                      African-American: 100%                      Education:                      HS or less: 36%                      Some college: 36%                      College degree or more: 27%                      Low income: \$0-\$9,999, 18%</p>	<p><b>CHW Activities:</b> CHWs (peer lifestyle coaches) delivered six group-based, face-to-face sessions over period of 8 wks. Each session delivered by 2-person CHW team. Second component involves 6 biweekly telephone support calls over period of 12 wks. CHW assigned to 2 participants to mentor during telephone support components. During core sessions, CHWs evaluated progress achieving (or not) lifestyle goal set in previous session; discussed specific lifestyle change topic; demonstrated exercise activity; set lifestyle goal for upcoming wk.</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate and accessible health education and information + Building individual and community capacity</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b>                      # CHWs involved in intervention: 6                      CHW matched to population by:                      Race/ethnicity                      Payment: NR</p>	<p><b>Sample Size:</b> Of 13 eligible participants, 11 completed analysis</p> <p>Completion rate: 85%</p> <p><b>Weight-Related Outcomes:</b>                      Change in average weight (SD), lbs                      Baseline: 189.7 (28.9)                      5 mos: 183.5 (29.5)                      Absolute change: -6.2 lbs                      Relative change: -3.3%                      p=NR</p> <p>Change in waist circumference (SD), in (n=10)                      Baseline: 41.2 (3.9)                      5 mos: 39.3 (2.7)                      Absolute change: -1.9 in                      Relative change: -4.6%                      p=NR</p> <p><b>Glycemic Outcomes:</b> NR</p> <p><b>CVD Risk Factors:</b>                      Change in serum cholesterol (SD), mg/dL                      Baseline: 202.0 (33.1)</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Funding:</b> Michigan Institute for Clinical and Health Research and grant from the National Institute Michigan Institute for Clinical and Health Research and grant from the National Institute of Diabetes and Digestive and Kidney Diseases</p> <p><b>Applicability:</b> African American adults at risk for diabetes</p>	<p>\$10,000-\$29,999, 36%                      Medicaid: 9%                      Medicare: 27%                      No health insurance: NR                      Unemployed: 18%</p> <p><b>Reported Risk Factors [Intervention Participants]:</b>                      BMI≥25 kg/m<sup>2</sup>: 100%</p>	<p>Educational background: NR                      Years of experience: NR                      Supervisor: NR.                      CHW performance evaluation: NR                      Recruitment: Nominated by church pastor and minister. Research assistant contacted nominees who expressed interest in being approached for study                      Training: 8-hr training program followed by subsequent 2-hr booster session. Included developing group facilitation active listening, behavior modification skills; learning lifestyle change strategies (e.g. reading food labels, counting calories; practicing and simulating session delivery; interpreting clinical lab results</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> NR</p> <p><b>Comparison Group:</b> NA</p>	<p>5 mos: 194.5 (31.7)                      Absolute change: -7.5 mg/dL                      Relative change: -3.7%                      p=NR</p> <p>Change in HDL (SD), mg/dL                      Baseline: 111.4 (27.4)                      5 mos: 114.2 (36.4)                      Absolute change: 2.8 mg/dL                      Relative change: 2.5%                      p=NR</p> <p>Change in LDL (SD), mg/dL                      Baseline: 65.3 (14.9)                      5 mos: 67.6 (15.0)                      Absolute change: 2.3 mg/dL                      Relative change: 3.5%                      p=NR</p> <p>Change in SBP (SD), mmHg                      Baseline: 139.5 (15.0)                      5 mos: 120.2 (16.2)                      Absolute change: -19.3 mmHg                      Relative change: -13.8%                      p=NR</p> <p>Change in DBP (SD), mmHg                      Baseline: 84.3 (17.6)                      5 mos: 74.4 (16.2)                      Absolute change: -9.9 mmHg                      Relative change: -11.7%                      p=NR</p> <p><b>Additional Outcomes**:</b>                      PA + Nutrition</p> <p><b>Summary:</b> Improvements made in the first 8 weeks (physical activity level increased significantly. Also found for waist circumference, SBP and fat intake, significant decline of HDL)</p> <p>Sustained effects at the end of the 20-week follow-up period (improvement were found for HDL and diastolic blood pressure)</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)



Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary																																																												
<p><b>Author(s):</b> Teufel-Shone et al. 2014</p> <p><b>Location:</b> Arizona</p> <p><b>Setting(s):</b> Schools</p> <p><b>Scale:</b> School for Hualapai Indian community, 109 students, 138 participated in at least 1 assessment, 71 in at least 3 and evaluated</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Time:</b> 2002-2006</p> <p><b>Intervention Duration:</b> 2 years</p> <p><b>Quality of Execution:</b> Fair (3 limitations)</p> <p><b>Limitation(s):</b> <i>Sampling (1)</i> Potential bias in classroom/teacher participation</p> <p><i>Measurement (1)</i> Measures attributable to prediabetes/diabetes had the potential for misreporting of intake at assessment of fasting</p> <p>Fitness measures were used for PA assessment, potentially masking changes in meaningful daily PA</p> <p><i>Interpretation of results (1)</i> Substantial loss to f/u (failure to complete study)</p> <p><b>Funding:</b> NIH grant to Inter-Tribal Council of Arizona</p> <p><b>Applicability:</b> Children Native Americans in School-settings; rural population</p>	<p><b>Inclusion:</b> Recruited classes of students in study school; grades 3-8</p> <p><b>Exclusion:</b> Classes/students in grades K-2</p> <p><b>Recruitment:</b> Study school (n=1) Recruited teachers/classrooms: 5 of 10 school classrooms</p> <p><b>Reported Baseline Demographics [Intervention Initial Participants n=109]:</b> Mean age: 10.1-10.4 yrs Sex: Female 45% Race/ethnicity: Native American 100% Education: Students Low income: NR, but school-provided meals Medicaid: NR Medicare: NR No health insurance: NR Unemployed: NR</p> <p><b>Reported Risk Factors [Intervention Initial Participants]:</b> BMI: 22.9-24.5 kg/m<sup>2</sup> Fasting blood glucose:107.4-109.5 mg/dL</p>	<p><b>CHW Activities:</b> Delivered a targeted twice-per-week, 40-60 minute physical activity intervention in school.</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate information and health education + Providing informal counseling and social support</p> <p><b>CHW Models of Care Met:</b> Screening and health education provider</p> <p><b>CHW Characteristics:</b> # CHWs involved in intervention: 3 Payment: NR Educational background: Undergraduate degree or course work on related (PA) topics Years of experience: NR Supervisor: NR Training: Formally trained in techniques and philosophies of -Pathways -Physical Best -SPARK</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> This study employed Community-based Participatory Research (CBPR) methods; Health Department of the Hualapai Tribe; University of Arizona</p>	<p><b>Sample Size:</b> Initial sample was 109. At 2 years, a total of 138 students participated in at least 1 assessment; of these, 71 participated in at least 3 assessments and were evaluated Completion rate: 51.4%</p> <p><b>Outcomes in subset of participants (n=71)</b> Classification by <b>Fasting Blood Glucose</b> (mg/dl)</p> <p><b>% Participants with Normal FBG (&lt;100)</b></p> <table border="1"> <thead> <tr> <th></th> <th>Males</th> <th>Females</th> </tr> </thead> <tbody> <tr> <td>Baseline:</td> <td>34.2%</td> <td>50.6%</td> </tr> <tr> <td>Final assessment:</td> <td>46.2%</td> <td>66.7%</td> </tr> <tr> <td>Change pct pts:</td> <td>+16</td> <td>+16.1</td> </tr> <tr> <td>Sign (overall trend) p=</td> <td>0.01</td> <td>0.01</td> </tr> </tbody> </table> <p><b>% Prediabetes (100-125)</b></p> <table border="1"> <thead> <tr> <th></th> <th>Males</th> <th>Females</th> </tr> </thead> <tbody> <tr> <td>Baseline:</td> <td>44.7%</td> <td>24.8%</td> </tr> <tr> <td>Final assessment:</td> <td>51.9%</td> <td>31.1%</td> </tr> <tr> <td>Change pct pts:</td> <td>+7.2</td> <td>+6.3</td> </tr> <tr> <td>Sign (overall trend) p=</td> <td>0.01</td> <td>0.01</td> </tr> </tbody> </table> <p><b>% Diabetes (&gt;126):</b></p> <table border="1"> <thead> <tr> <th></th> <th>Males</th> <th>Females</th> </tr> </thead> <tbody> <tr> <td>Baseline:</td> <td>21.1%</td> <td>25.6%</td> </tr> <tr> <td>Final assessment:</td> <td>1.9%</td> <td>2.2%</td> </tr> <tr> <td>Change pct pts:</td> <td>-19.2</td> <td>-23.4</td> </tr> <tr> <td>Sign (overall trend) p=</td> <td>0.01</td> <td>0.01</td> </tr> </tbody> </table> <p><b>Weight classification by BMI Percentile</b> Overweight</p> <table border="1"> <thead> <tr> <th></th> <th>Females</th> <th>Males</th> </tr> </thead> <tbody> <tr> <td>Baseline:</td> <td>18.4%</td> <td>24.3%</td> </tr> <tr> <td>Final assessment:</td> <td>23.0%</td> <td>28.9%</td> </tr> <tr> <td>Change pct pts:</td> <td>+4.6</td> <td>+4.6</td> </tr> <tr> <td>Sign (overall trend) p=</td> <td>0.67</td> <td>0.46</td> </tr> </tbody> </table>		Males	Females	Baseline:	34.2%	50.6%	Final assessment:	46.2%	66.7%	Change pct pts:	+16	+16.1	Sign (overall trend) p=	0.01	0.01		Males	Females	Baseline:	44.7%	24.8%	Final assessment:	51.9%	31.1%	Change pct pts:	+7.2	+6.3	Sign (overall trend) p=	0.01	0.01		Males	Females	Baseline:	21.1%	25.6%	Final assessment:	1.9%	2.2%	Change pct pts:	-19.2	-23.4	Sign (overall trend) p=	0.01	0.01		Females	Males	Baseline:	18.4%	24.3%	Final assessment:	23.0%	28.9%	Change pct pts:	+4.6	+4.6	Sign (overall trend) p=	0.67	0.46
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Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary										
			<p>Obese Overweight</p> <table border="0"> <tr> <td><b>Females</b></td> <td><b>Males</b></td> </tr> <tr> <td>Baseline: 33.4%</td> <td>52.6%</td> </tr> <tr> <td>Final assessment: 42.2%</td> <td>55.8%</td> </tr> <tr> <td>Change pct pts: +8.8</td> <td>+3.2</td> </tr> <tr> <td>Sign (overall trend) p=0.46</td> <td>p=0.67</td> </tr> </table> <p><b>Exercise/Fitness Measures (set of 5) Table 4</b> Males: Changes in 1 of 5 fitness measures were statistically significant Females: Changes in 3 of 5 fitness measures were statistically significant</p> <p><b>Additional Outcomes**:</b> PA measures in more detail (Table 4)</p> <p><b>Summary:</b> CHW-delivered school-based exercise program for Native American children found significant improvements in fasting blood glucose (normal FBG). BMI and most fitness measures did not significantly improve.</p>	<b>Females</b>	<b>Males</b>	Baseline: 33.4%	52.6%	Final assessment: 42.2%	55.8%	Change pct pts: +8.8	+3.2	Sign (overall trend) p=0.46	p=0.67
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Sign (overall trend) p=0.46	p=0.67												
<p><b>Author(s):</b> Wagner et al. 2015</p> <p><b>Location:</b> Connecticut and Western Massachusetts</p> <p><b>Setting(s):</b> Home + other settings (Buddhist temple, doctors' offices, supermarkets)</p> <p><b>Scale:</b> Community, 140 participants enrolled, 114 completed 12 month assessments; CHWs=4</p> <p><b>Design:</b> Before-after without comparison group</p> <p><b>Time:</b> 12 months</p>	<p><b>Inclusion:</b> Cambodian born in Cambodia during or before 1975; lived in Cambodia during the 1975 to 1979 Khmer Rouge regime; resettled to the U.S. as a refugee; reside in Connecticut or Western MA</p> <p><b>Exclusion:</b> NR</p> <p><b>Recruitment:</b> Snowball sampling was used until 140 completed surveys First participants were recruited from Buddhist temples</p> <p><b>Reported Baseline Demographics [Intervention Participants n=140]:</b> Median age (SD): 55.8 (12.4)</p>	<p><b>CHW Activities:</b> CHWs delivered the Eat walk sleep (EWS) program after receiving four weeks of training, including 40 hours devoted to the content and delivery of EWS. CHWs also provided at least one contact, usually home visits of approximately one hour each during the year.</p> <p><b>CHW Core Roles Met:</b> Providing culturally appropriate information and health education + Ensuring that clients get the services they need + Building individual and community capacity + Bridging/cultural mediation between communities and the health and social services</p>	<p><b>Sample Size:</b> Of the 140 initial participants, 114 completed intervention (10 refused f/u assessments, 2 died, 14 lost to f/u)</p> <p>Completion rate: 81%</p> <p><b>Additional Outcomes**:</b> PA + Nutrition + Knowledge + Discrimination in healthcare in last 12 months + Barriers to care</p> <p>Intent-to-treat analysis (ITT) used with correction for multiple comparisons</p> <p><b>Summary:</b> Cambodian-Americans showed improvements in diet, physical activity, and sleeping patterns.</p>										

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

Study Details	Population Characteristics	Intervention + Comparison Description	Health Outcomes* and Summary
<p><b>Intervention Duration:</b> August 2011 to August 2012</p> <p><b>Quality of Execution:</b> Fair</p> <p><b>Limitation(s):</b> 4 <i>Description of intervention (1)</i> Unclear what intervention involved (contact length and frequency btwn study participants and CHWs, topics)</p> <p><i>Sampling (1)</i> Snowball sampling (existing study subjects recruit future subjects from among their acquaintances); small sample size?</p> <p><i>Measurement (1)</i> Self-reported physical activity and dietary intake measures</p> <p><i>Interpretation of results (1)</i> Included those with diabetes without stratification-potential bias</p> <p><b>Funding:</b> Supported by a REACH grant to Khmer Health Advocates from the CDC</p> <p><b>Applicability:</b> Refugee population Older adults Cambodians living in America</p>	<p>Sex: Female 61.4% Race/ethnicity: Asian 100% Cambodian-American Education: None 12.9% 1–5 years 46.4% 6–8 years 11.4% 9–12 years 19.3% &gt;12 years 10.0% Low income: NR Medicaid: NR Medicare: NR No health insurance: NR Unemployed: NR</p> <p><b>Reported Risk Factors [Intervention Participants]:</b> High blood pressure: 40.7% Diabetes: 27.1% Heart disease: 17.1% (stroke: 7.9%)</p> <p><b>Co-morbidities:</b> Major depressive disorder: 65.7 % Post- traumatic stress disorder: 67.9 %</p>	<p><b>CHW Models of Care Met:</b> Screening and health education provider + Outreach/enrollment/information agent</p> <p><b>CHW Characteristics:</b> CHW matched to population by: Language + Race/ethnicity Payment: NR Education: One CHW attended college in Cambodia and also completed a bachelor’s degree in the U.S. Two were college-educated in the United States only, and one had no college but could read and write in Khmer Years of experience: NR Supervisor: NR CHW performance evaluation: NR Recruitment: NR Training: Advanced practice registered nurse + Cambodian-born, bilingual licensed professional counselor provided 4 weeks of training, including 40 hours devoted to the content and delivery of EWS Trained by Khmer Health Advocates leadership who had coordinated the original development and testing of EWS curriculum</p> <p><b>Other Provider(s):</b> NA</p> <p><b>Other Provider(s) Activities:</b> NA</p> <p><b>Community Partners Involved:</b> University of Connecticut Health Center, Khmer Health Advocates</p>	<p>Improvements in preventive health behaviors (blood pressure, cholesterol screening, decreased barriers to care)</p>

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

## APPENDIX – HEALTH BEHAVIOR OUTCOMES

### Results from Physical Activity Outcomes in Included Studies

<b>Author (s) (Suitability of Design)</b>	<b>Outcome Name</b>	<b>Baseline</b>	<b>Last Follow-Up</b>	<b>Change in Physical Activity Outcome (Diff. in diff of means OR absolute pct pt change)</b>
Bazzano et al. 2009 (Least)	Change in exercise frequency, times/wk	Intervention (n=68): 3.2 times/wk	<b>7 mos</b> Intervention (n=44): 3.9 times/wk	+0.7 times/wk (p=0.01) Favorable direction
Bazzano et al. 2009 (Least)	Change in exercise, min/wk	Intervention (n=68): 133.0 min/wk	<b>7 mos</b> Intervention (n=44): 206.4 min/wk	+73.4 min/wk (p=0.002) Favorable direction
Cene et al. 2013 (Least)	30 min or more physical activity, d/wk	Intervention (n=104) : 2.5 d/wk	<b>6 mos</b> Intervention (n=30) :2.7 d/wk	+0.2 d/wk (p=0.85) Favorable direction
Cene et al. 2013 (Least)	Level pf physical activity in past week	NR	<b>6 mos</b> NR	+0.5 (p=0.076) Favorable direction
Mau et al. 2010 (Least)	6 Minute Walk Test, feet	Intervention (n=169): 644 feet	<b>3 mos</b> Intervention (n=169) : 681 feet	+42 feet (p=NR) Favorable direction
Mau et al. 2010 (Least)	Frequency of moderate-vigorous physical activity, score unit	Intervention (n=169) : 3.4 score unit	<b>3 mos</b> Intervention (n=169) : 2.9 score unit	-0.5 score unit (p=NR) Favorable direction
Philis-Tsimikas et al. 2014 (Least)	Proportion who meet recommended criteria of 30+ min/d of moderate physical activities, 5+ d/wk, %	Intervention (n=84): 52%	<b>6 mos</b> Intervention (n=70): 69%	+17 pct pts (p=0.045) Favorable direction
Philis-Tsimikas et al. 2014 (Least)	Proportion of those who report engaging in any flexible and/or strength-training, %	Intervention (n=84): 18%	<b>6 mos</b> Intervention (n=70): 40%	+22 pct pts (p<0.001) Favorable direction
Ruggiero et al. 2011 (Least)	Change in total minutes walking from baseline, min	Intervention (n=69): NA	<b>12 mos</b> Intervention (n=45): 27.9 min	+27.9 min (p=0.6254) Favorable direction
Ruggiero et al. 2011 (Least)	Change in total time sitting from baseline, min	Intervention (n=69): NA	<b>12 mos</b> Intervention (n=54): -44.4 min	-44.4 min (p=0.0253) Favorable direction

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Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

<b>Author (s) (Suitability of Design)</b>	<b>Outcome Name</b>	<b>Baseline</b>	<b>Last Follow-Up</b>	<b>Change in Physical Activity Outcome (Diff. in diff of means OR absolute pct pt change)</b>
Ruggiero et al. 2011 (Least)	Change in metabolic equivalents expended during physical activity (questionnaire measures vigorous, moderate, and walking activity in minutes and days/week and provides calculation of metabolic equivalents)	Intervention (n=69): NA	<b>12 mos</b> Intervention (n=55): 142.5 metabolic equivalents	+142.5 metabolic equivalents expended during physical activity(p=0.4896) Favorable direction
Schwartz et al. 2013 (Least)	Proportion underactive, %	Intervention (n=450): 63.2%	<b>3 mos</b> Intervention (n=450): 47.7%	-15.5 pct pts (p=NR) Favorable direction
Schwartz et al. 2013 (Least)	Proportion active, %	Intervention (n=450): 34.2%	<b>3 mos</b> Intervention (n=450): 50.0%	+15.8 pct pts (p=NR) Favorable direction
Shaibi et al. 2012 (Least)	Physical inactivity, 30 min blocks/d	Intervention (n=15): 15.7 min blocks/d	<b>3 mos</b> Intervention (n=15): 11.5 min blocks/d	-4.2 min blocks/d (p=0.002) Favorable direction
Shaibi et al. 2013 (Least)	Screen time, 30 min blocks/d	Intervention (n=15): 5.6 min blocks/d	<b>3 mos</b> Intervention (n=15): 3.0 min blocks/d	-2.6 min blocks/d (p=0.02) Favorable direction
Staten et al. 2005 (Least)	Fast walking, min/wk	Intervention (n=198): 77.5 min/wk	<b>3 mos</b> Intervention (n=198): 108.9 min/wk	+31.4 min/wk (p=0.002) Favorable direction
Staten et al. 2005 (Least)	Moderate walking, min/wk	Intervention (n=191): 73.7 min/wk	<b>3 mos</b> Intervention (n=191): 138.1 min/wk	+64.4 min/wk (p<0.001) Favorable direction
Staten et al. 2005 (Least)	Slow walking, min/wk	Intervention (n=202): 45.7 min/wk	<b>3 mos</b> Intervention (n=202): 40.5 min/wk	-5.2 min/wk (p=0.81) Favorable direction
Tang et al. 2014 (Least)	Physical activity, caloric expenditure/wk	Intervention (n=11): 1,198 calories/wk	<b>5 mos</b> Intervention (n=11): 2,042 calories/wk	+884 calories/wk (p=NR) Favorable direction

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## Results from Nutrition Outcomes in Included Studies

<b>Author (s) (Suitability of Design)</b>	<b>Outcome Name</b>	<b>Baseline</b>	<b>Last Follow-Up</b>	<b>Change in Nutrition Outcome (Diff. in diff of means OR absolute pct pt change)</b>
Bazzano et al. 2009 (Least)	Change in eating habits-vegetable, servings/d	Intervention (n=68): 2.0 servings/d	<b>7 mos</b> Intervention (n=44): 2.2 servings/d	+0.2 servings/d (p=0.13) Favorable direction
Bazzano et al. 2009 (Least)	Change in eating habits-fruit, servings/d	Intervention (n=68): 1.7 servings/d	<b>7 mos</b> Intervention (n=44): 2.0 servings/d	+0.3 servings/d (p=0.03) Favorable direction
Bazzano et al. 2009 (Least)	Change in eating habits-meat, servings/d	Intervention (n=68): 2.0 servings/d	<b>7 mos</b> Intervention (n=44): 1.9 servings/d	-0.1 servings/d (p=0.20) Favorable direction
Mau et al. 2010 (Least)	Dietary fat intake score, score unit	Intervention (n=169): 2.8 servings/d	<b>3 mos</b> Intervention (n=169): 2.5 servings/d	-0.3 servings/d (p=NR) Favorable direction
Philis-Tsimikas et al. 2014 (Least)	Change in avg dietary fat, % total calories	Intervention (n=84): 33.91% total fat calories	<b>6 mos</b> Intervention (n=70): 30.57% total fat calories	-3.34 % total fat calories (p<0.001) Favorable direction
Ruggiero et al. 2011 (Least)	Change in low-fat/nonfat substitution (Lower scores over time reflect increase in healthy eating)	Intervention (n=69): NA	<b>6 mos</b> Intervention (n=55): -0.57 units	-0.57 units (p=0.0001) Favorable direction
Ruggiero et al. 2011 (Least)	Change in modification of meat intake (Lower scores over time reflect increase in healthy eating)	Intervention (n=69): NA	<b>6 mos</b> Intervention (n=55): -0.44 units	-0.44 units (p<0.0133) Favorable direction
Ruggiero et al. 2011 (Least)	Change in avoidance of frying (Lower scores over time reflect increase in healthy eating)	Intervention (n=69): NA	<b>6 mos</b> Intervention (n=55): -0.34 units	-0.34 units (p=0.001) Favorable direction
Ruggiero et al. 2011 (Least)	Change in fruit and vegetable replacement (Lower scores over time reflect increase in healthy eating)	Intervention (n=69): NA	<b>6 mos</b> Intervention (n=51): -0.74 units	-0.74 units (p<0.001) Favorable direction
Ruggiero et al. 2011 (Least)	Change in avoidance of fat (Lower scores over time reflect increase in healthy eating)	Intervention (n=69): NA	<b>6 mos</b> Intervention (n=54): -0.10 units	-0.10 units (p=0.2915) Favorable direction
Ruggiero et al. 2011 (Least)	Change in dietary habits questionnaire summary score (Lower scores over time reflect increase in healthy eating)	Intervention (n=69): NA	<b>6 mos</b> Intervention (n=44): -1.54 units	-1.54 units (p=0.0037) Favorable direction

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Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

<b>Author (s) (Suitability of Design)</b>	<b>Outcome Name</b>	<b>Baseline</b>	<b>Last Follow-Up</b>	<b>Change in Nutrition Outcome (Diff. in diff of means OR absolute pct pt change)</b>
Schwartz et al. 2013 (Least)	Proportion usually/often consumes 3+ servings of vegetables/d, %	Intervention (n=450): 45.4%	<b>3 mos</b> Intervention (n=450): 60.9%	+15.5 pct pts (p=NR) Favorable direction
Schwartz et al. 2013 (Least)	Proportion rarely/never consumes high fat snacks, %	Intervention (n=450): 26.6%	<b>3 mos</b> Intervention (n=450): 47.3%	+20.7 pct pts (p=NR) Favorable direction
Schwartz et al. 2013 (Least)	Proportion rarely/never consumes soda/soft drinks, %	Intervention (n=450): 41.9%	<b>3 mos</b> Intervention (n=450): 63.2%	+21.3 pct pts (p=NR) Favorable direction
Shaibi et al. 2013 (Least)	Dietary fat, servings/d	Intervention (n=15): 3.3 servings/d	<b>3 mos</b> Intervention (n=15): 2.0 servings/d	-1.3 servings/d (p=0.001) Favorable direction
Shaibi et al. 2013 (Least)	Fruits and vegetables, servings/d	Intervention (n=15): 2.9 servings/d	<b>3 mos</b> Intervention (n=15): 2.7 servings/d	-0.2 servings/d (p=0.72) Unfavorable direction
Staten et al. 2005 (Least)	Soda intake, servings/wk	Intervention (n=204): 2.6 servings/wk	<b>3 mos</b> Intervention (n=204): 1.4 servings/wk	-1.2 servings/wk (p<0.001) Favorable direction
Staten et al. 2005 (Least)	Diet soda intake, servings/wk	Intervention (n=204): 1.7 servings/wk	<b>3 mos</b> Intervention (n=204): 1.7 servings/wk	0 servings/wk (p<0.001) Null
Staten et al. 2005 (Least)	Sweetened drink intake, servings/wk	Intervention (n=208): 4.7 servings/wk	<b>3 mos</b> Intervention (n=208): 4.3 servings/wk	-0.4 servings/wk (p=0.24) Favorable direction
Staten et al. 2005 (Least)	Sports drink intake, servings/wk	Intervention (n=203): 1.6 servings/wk	<b>3 mos</b> Intervention (n=203): 1.0 servings/wk	-0.6 servings/wk (p=0.07) Favorable direction
Staten et al. 2005 (Least)	Sweetened hot drink intake, servings/wk	Intervention (n=205): 7.5 servings/wk	<b>3 mos</b> Intervention (n=205): 6.5 servings/wk	-1.0 servings/wk (p=0.01) Favorable direction
Staten et al. 2005 (Least)	Salad intake, servings/wk	Intervention (n=208): 4.5 servings/wk	<b>3 mos</b> Intervention (n=208): 6.2 servings/wk	+1.7 servings/wk (p<0.001) Favorable direction
Staten et al. 2005 (Least)	Vegetable intake, servings/wk	Intervention (n=205): 5.3 servings/wk	<b>3 mos</b> Intervention (n=205): 7.8 servings/wk	+2.5 servings/wk (p<0.001) Favorable direction

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)

Diabetes: Community Health Workers – Evidence Table, Studies with Least Suitability of Study Design

<b>Author (s) (Suitability of Design)</b>	<b>Outcome Name</b>	<b>Baseline</b>	<b>Last Follow-Up</b>	<b>Change in Nutrition Outcome (Diff. in diff of means OR absolute pct pt change)</b>
Staten et al. 2005 (Least)	Fruit intake, servings/wk	Intervention (n=204): 8.8 servings/wk	<b>3 mos</b> Intervention (n=204): 11.7 servings/wk	+2.9 servings/wk (p<0.001) Favorable direction
Staten et al. 2005 (Least)	Fruit and vegetable intake, servings/wk	Intervention (n=201): 14.2 servings/wk	<b>3 mos</b> Intervention (n=201): 19.6 servings/wk	+5.4 servings/wk (p<0.001) Favorable direction
Tang et al. 2014 (Least)	Fruit and vegetable intake, times/mo (frequency at which consumed within past month)	Intervention (n=11): 14.2 times/mo	<b>5 mos</b> Intervention (n=11): 15.4 times/mo	+1.2 times/mo (p=NR) Favorable direction
Tang et al. 2014 (Least)	Fat intake, times/mo (frequency at which consumed within past month)	Intervention (n=11): 21.8 times/mo	<b>5 mos</b> Intervention (n=11): 14.5 times/mo	-7.3 times/mo (p=NR) Favorable direction

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)



## Results from Additional Outcomes in Included Studies

<b>Author (s) (Suitability of Design)</b>	<b>Outcome Name</b>	<b>Baseline</b>	<b>End of Intervention</b>	<b>Change in nutrition outcome (Diff. in diff of means OR absolute pct pt change)</b>
Bazzano et al. 2009 (Least)	Proportion of participants totally sure that can make doctor's appointment, %	Intervention (n=68): 66.7 %	<b>7 mos</b> Intervention (n=44): 83.3%	+16.6 pct pts (p=0.003) Favorable direction
Cene et al. 2013 (Least)	Average percent score on diabetes knowledge questionnaire, %	Intervention (n=30): 64%	<b>6 mos</b> Intervention (n=30): 80%	+16 pct pts (p<0.01) Favorable direction
O'Brien et al. 2015 (Least)	Health related quality of life - physical component summary, score unit	Intervention (n=20):43.5 score unit	<b>12 mos</b> Intervention (n=19):44.9 score unit	+1.4 score unit (p=0.41) Favorable direction
O'Brien et al. 2015 (Least)	Health related quality of life- mental component summary, score unit	Intervention (n=20): 45.1 score unit	<b>12 mos</b> Intervention (n=19):46.5 score unit	+1.4 score unit (p=0.49) Favorable direction
O'Brien et al. 2015 (Least)	Perceived social support, score unit	Intervention (n=20): 60.3 score unit	<b>12 mos</b> Intervention (n=19):66.4 score unit	+6.2 score unit (p=0.09) Favorable direction
O'Brien et al. 2015 (Least)	Perceived stress, score unit	Intervention (n=20): 22.4 score unit	<b>12 mos</b> Intervention (n=19):22.3 score unit	-0.1 score unit (p=0.95) Favorable direction
O'Brien et al. 2015 (Least)	Depression, score unit	Intervention (n=20): 16.5 score unit	<b>12 mos</b> Intervention (n=19):11.3 score unit	-5.2 score unit (p=0.01) Favorable direction
O'Brien et al. 2015 (Least)	Anxiety, score unit	Intervention (n=20): 5.8 score unit	<b>12 mos</b> Intervention (n=19):3.9 score unit	-2.0 score unit (p=0.16) Favorable direction
Philis-Tsimikas et al. 2015 (Least)	Knowledge, overall perceived health, score unit	Intervention (n=84): 3.1 (1.0) score unit	<b>6 mos</b> Intervention (n=70): 3.2 (0.9) score unit	+0.1 score unit (p=0.15) Favorable direction
Philis-Tsimikas et al. 2015 (Least)	Fatalistic beliefs (the belief that events are determined by fate), score unit	Intervention (n=84): 4.9 (3.8) score unit	<b>6 mos</b> Intervention (n=70): 3.2 (0.9) score unit	-1.0 score unit (p=0.02) Favorable direction

\*Health outcomes include: weight-related outcomes, glycemic outcomes, and CVD risk factors

\*\* Health behavior outcomes provided in Appendix (below)