Results From and Preliminary Validation of the Workplace-Related Community Health Worker Common Indicators in a Large-Scale Sample

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Objectives. To evaluate workplace conditions in the Community Health Workers (CHWs) for COVID Response and Resilient Communities initiative using the workplace-related CHW Common Indicators and to conduct a preliminary validation of those indicators.

Methods. A CHW survey conducted between February 12, 2024, and March 29, 2024, incorporated all or part of the workplace-related Common Indicators. We produced descriptive statistics to answer evaluation questions and conducted exploratory factor analyses to initially validate scalar portions of the indicators.

Results. Our analyses revealed generally positive ratings of workplace conditions for CHWs in diverse sites around the United States. Scalar components of the Common Indicators achieved Cronbach alpha values above 0.8 and loaded on 1 principal factor per scale.

Conclusions. Our findings from a definable large-scale sample confirm that the Common Indicators provide a practical, reliable, and valid way to measure workplace conditions that allow CHWs to be optimally effective across settings and jurisdictions. The positive results indicate that a federal CHW program can help to create beneficial workplace conditions for CHWs while making it possible to compare consistent data about the CHW workforce. (*Am J Public Health*. 2026;116(S4):S276–S284. https://doi.org/10.2105/AJPH.2026.308641)

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Community health workers (CHWs), frontline health professionals who are trusted members of the communities they serve, are integral members of the US health workforce. More than 60 years of research, both in the United States and around the world, documents the positive outcomes associated with CHW programs.[1,2]

Historically, research about CHWs—and consequently support for the profession—was hindered by 2 important gaps. The first was a lack of common process and outcome measures, which prevented data aggregation and the articulation of a unified scientific case for CHWs.[3] The lack of common measures also made it more difficult for community-based programs that lack evaluation funding to document outcomes to funders. The second shortcoming of previous CHW research was the absence of CHW involvement in all stages of the research.[4] Without the perspectives of those closest to the work, CHW research tended to focus only on outcomes and overlook important information about how CHWs achieve those outcomes.[5,6]

To address these shortcomings, 16 CHWs, program staff, and researcher allies came together in 2015 to identify CHW-informed common process and outcome measures for CHW practice. Over 2 days, CHW facilitators led the group to answer a pair of primary questions: What outcomes are CHWs uniquely able to achieve? and What workplace and workforce conditions do

CHWs need to achieve those outcomes? By the end of the meeting, the group had identified 20 process and outcome constructs that participants agreed should be measured in all CHW programs and members had formed the CHW Common Indicators Project (renamed the CHW Center for Research and Evaluation [CHW-CRE] in 2023 to acknowledge an expanded mission). Following the standard set at the organizational meeting, CHWs have been at the forefront of the initiative since its inception.[7]

Between 2015 and 2021, with support from the Centers for Disease Control and Prevention (CDC) and substantial community engagement, the group developed and piloted a set of 12 process and outcome indicators divided into the 3 categories suggested by the 2 initial questions. (Workplace and workforce conditions were divided into 2 categories [Table A, available as a supplement to the online version of this article at http://www.ajph.org].) Whereas some indicators make up a single scale, other indicators include multiple scales as well as questions not intended to function as a scale. Previous studies have documented the composition, operationalization, and uniqueness of the Common Indicators and explained how the CHW-CRE uses popular education to center CHWs in knowledge production about their own profession.[8] The workplace indicators measure conditions that have previously been demonstrated to promote CHW effectiveness.[9–11]

To date, one or more of the Common Indicators have been collected by community-based organizations, Pathways CHW Hubs,[12] and a statewide CHW program and included in 1 regional research study and at least 4 statewide CHW surveys.[13–15] Although these efforts established the face validity of the novel scales developed by the CHW-CRE and provided evidence of the internal consistency reliability of one of the scales,[16] the small numbers and regional nature of previous collection efforts made it impossible to reach conclusions about the CHW workforce at a larger level or to further validation of the scales through more rigorous exploratory factor analyses (EFAs).

In 2021, CDC launched its first nationwide CHW initiative, CHWs for COVID Response and Resilient Communities (CCR). Recognizing the crucial role CHWs were already playing in the communities hardest hit by the pandemic, the CDC provided funding to 67 sites throughout the continental United States as well as US territories to train, deploy, and engage CHWs. The CHW-CRE participated with both evaluation organizations.[17] CDC leaders and others involved with the initiative recognized the importance of using the CHW Common Indicators as part of the National Evaluation Plan for CCR; they also recognized that the initiative provided a valuable opportunity to collect workplace-related Common Indicators from a definable large-scale sample of CHWs and to initially validate 3 novel scales (Wiggins et al., p. xx).

Our objectives in this study were to report on the preliminary validation of the workplace-related Common Indicators and to answer 4 evaluation questions included in the National Evaluation Plan for which these indicators were used: (1) What compensation, benefits, and opportunities for advancement did CHWs receive during CCR? (2) To what degree were CHWs involved in policy and decision-making? (3) To what degree were CHWs fully integrated into teams? and (4) To what degree did CHWs have access to supportive and reflective supervision? In summary, to what degree did this federal CHW program provide key conditions CHWs need to be effective?

METHODS

We conducted a survey of CHWs that incorporated all or part of the workplace-related Common Indicators. We produced descriptive statistics to answer evaluation questions and conducted exploratory factor analyses to initially validate scalar portions of the indicators.

Study Design

The data reported here were collected between February 12, 2024, and March 29, 2024, as part of a digital survey of CHWs involved in the CCR program. CHWs who had worked on CCR for at least a year and whose salaries were fully or partially funded by CCR were eligible to participate. CCR program administrators provided names and e-mail addresses for all eligible CHWs, who subsequently were sent unique survey links via e-mail. Brown et al. (p. xx) provide further information about CHW survey methods.

On the basis of the evaluation questions identified in the National Evaluation Plan, 5 Common Indicators or indicator components were included in the CHW survey:

1. the CHW-facing version of Indicator 1 (CHW wages, benefits, and opportunities for advancement);
2. a version of Indicator 2 (frequency of enactment of the 10 core CHW roles) modified for use in a survey;
3. CHW Involvement in Decision- and Policymaking, a novel scale comprising the entirety of Indicator 4;
4. several components of Indicator 5 (CHW integration into teams),

including the Influence of Racism and Discrimination on Integration scale; and
5. Supervisor Attitudes and Characteristics, a novel scale included in the CHW-facing version of Indicator 12 (supportive and reflective supervision). Results of Indicator 2 are reported by Stalker et al. (p. xx).

We were unable to include full versions of all 5 Common Indicators because of constraints on survey length.

Statistical Analyses

Given that the scalar indicators and indicator components had not been validated, our analysis plan involved establishing preliminary measurement models through EFA and then computing descriptive statistics (means, standard deviations, frequencies, and percentages) for the scalar as well as the nonscalar indicators or indicator components included in the survey.

EFA was used to examine the factor structure of the following scalar indicators or indicator components: Influence of Racism and Discrimination on Integration (4 items; hereafter Influence of Discrimination), CHW Involvement in Decision- and Policymaking (6 items; hereafter CHW Involvement), and Supervisor Attitudes and Characteristics (7 items; hereafter Supervisor Attitudes). All items making up the 3 scalar indicators or indicator components were rated on a 4-point Likert scale (strongly disagree, disagree, agree, strongly agree).

Before conducting the EFA, we examined missing data. Missing data averaged 9.3% for Influence of Discrimination items, 9.9% for CHW Involvement items, and 11.5% for Supervisor Attitudes items. Little's tests of missing completely at random were run with the Stata *mcartest* command (StataCorp LC, College Station, TX).[18] Results suggested that we could proceed under the missing completely at random assumption and that complete case analyses would yield unbiased estimates (n = 623 for Influence of Discrimination, n = 615 for CHW Involvement, and n = 601 for Supervisor Attitudes).

Next, we assessed the degree to which the data were amenable to factor analysis. Initially, we examined the correlation matrix to note any "red flags," particularly if any items failed to correlate at a 0.3 level or higher with any other item in the scale[19] or correlated at a 0.8 level or higher.[20] Initial examination of the correlation matrices for each of the scales did not reveal any problematic items (i.e., each item correlated with at least one other item at the level of 0.3 or higher and there were no correlations at 0.8 or above).

We ran Bartlett's test of sphericity; a significant *P* value on this test indicates that there are significant relationships between the analytic variables.[20] Next, Kaiser-Meyer-Olkin (KMO) statistics were estimated to determine sampling adequacy (a measure of the proportion of potentially common variance; a higher KMO value provides evidence of the suitability of factor analysis). We used the following suggested criteria to interpret KMO values: "marvelous" (0.90–1.00), "meritorious" (0.80–0.89), "middling" (0.70–0.79), "mediocre" (0.60–0.69), and "miserable (0.50–0.59).[21] Principal axis factoring was selected as the factor extraction method because of the somewhat nonnormal distribution of the data.[22] We examined eigenvalues and scree plots to determine the number of factors to retain. We used the Cronbach alpha coefficient as the measure of internal consistency reliability for the 3 scales.[23] Analyses were conducted with Stata version 18.[24]

RESULTS

A majority of CHW survey respondents, who represented all 10 Department of Health and Human Services regions, identified as women (86.3%). In addition, survey respondents identified as members of the following racial/ethnic communities (respondents could select all that apply): Hispanic/Latino (39.5%), White (30.2%), African American/Black (27.0%), American Indian/Alaska Native (9.8%), Asian (3.6%), African (3.3%), Afro-Caribbean (2.8%), Native Hawaiian/Pacific Islander (2.5%), and Middle Eastern (1.0%). Other characteristics of CHW survey participants are described by Brown et al. (p. xx).

Exploratory Factor Analysis

Initial examination of the correlation matrices for each of the scales did not identify any problematic items. KMO values for each scale are presented in Table 1; KMO indices indicate middling factorability for Influence of Discrimination, meritorious factorability for CHW Involvement, and marvelous factorability for Supervisor Attitudes. Results from Bartlett's test of sphericity (Table 1) suggested that there was a relationship between analytic variables for each of the 3 scales, indicating that we could proceed with the EFA.

Influence of Racism and Discrimination on Integration Scale. Examination of the eigenvalues and the scree plot indicated that a single-factor solution fit the data best, meaning that the scale likely measures 1 underlying construct. Results from the initial factor analysis indicated that factor loadings, which ranged from 0.754 to 0.816, were adequate (i.e., above 0.32 according to Tabachnick and Fidell[25]). All communalities were above the 0.4 threshold

TABLE 1— Exploratory Analysis of Community Health Worker Common Indicators Scales: United States, February 12–March 29, 2024

Community Health Worker Common Indicators Scale	Factor Loading	Communality
Influence of Racism and Discrimination on Integration Scale[a] [KMO = 0.765; $\chi^2(6) = 1363.8$*]		
I feel isolated from them because of my race/ethnicity or culture	0.785	0.616
I feel like I have to be the only voice for my race/ethnicity or culture among them	0.754	0.569
I feel dismissed or devalued by them because of my racial/ethnic or cultural background	0.816	0.665
I feel they make assumptions about me because of my race/ethnicity or culture	0.808	0.652
CHW Involvement in Decision- and Policymaking Scale[b] [KMO = 0.834; $\chi^2(15) = 1407.3$*]		
As part of my job, I have identified the people or organizations that influence change in my community	0.542	0.294
As part of my job, people who influence change in my community seek my opinion and participation	0.656	0.431
As a part of my job, I am a member of one or more groups/organizations that make (that is, develop and/or enact) policy for my community, city, county, state, or tribe	0.794	0.630
My employer/supervisor supports my involvement in policymaking on work time	0.605	0.366
I am a member of one or more groups that influence policy in my employing organization	0.739	0.546
I believe that as a CHW, I have influenced policy in my organization or community	0.724	0.525
Supervisor Attitudes and Characteristics Scale[c] [KMO = 0.916; $\chi^2(15) = 2952.8$*]		
My supervisor appreciates my role as a CHW	0.873	0.762
My supervisor advocates for the role of CHWs with upper management (staff who rank above the supervisor)	0.861	0.742
My supervisor has participated in training about the CHW profession	0.715	0.511
My supervisor encourages my professional growth (e.g., by regularly encouraging me and/or accepting my suggestions in supervision sessions to pursue training opportunities, attend conferences, develop leadership skills, etc.)	0.866	0.750
My supervisor understands the strengths and needs of the community/ies we serve	0.883	0.780
My supervisor understands that improving health requires addressing racism and other forms of oppression	0.812	0.659

Note. CCR = Community Health Workers for COVID Response and Resilient Communities; CHW = community health worker. Kaiser-Meyer-Olkin (KMO) statistics and Bartlett's test of sphericity were used in the analysis.
[a]Prefatory statement: "Thinking about other healthcare, social service, and/or education providers with whom you work on CCR activities, please indicate how much you agree or disagree with the following statements."
[b]Prefatory statement: "Thinking about your job as a CHW while you carried out CCR activities, please indicate how much you agree or disagree with the following statements."
[c]Prefatory statement: "Thinking of the person you consider to be your primary supervisor for your CCR work during the past 30 days, please indicate how much you agree or disagree with the following statements."
*$P < .001$.

level recommended by Costello and Osborne[22] and ranged from 0.569 to 0.665. Factor loadings and communalities are displayed in Table 1. The Cronbach alpha reliability coefficient was 0.873.

CHW Involvement in Decision- and policymaking Scale. Examination of the eigenvalues and the scree plot indicated that a single-factor solution fit the data best. Results from the initial factor analysis indicated that factor loadings, which ranged from 0.542 to 0.794, were adequate. Examination of communalities revealed that the 2 items "As part of my job, I have identified the people or organizations that influence change in my community" and "My employer/supervisor supports my involvement in policymaking on work time" had communalities of 0.294 and 0.366, respectively. Given that these values were below the threshold of 0.4, we followed the recommendations of Costello and Osborne[22] and considered why the items were included as part of the scale and the possibility that the items were not related to the other items. Discussions with members of the CHW-CRE leadership team suggested that these items were not problematic.

Additional exploratory analyses, including dropping each item one at a time and examining the residual matrix, failed to improve the model. Therefore, we determined that the best model was the original version that included all items. Factor loadings and communalities are displayed in Table 1. The

Cronbach alpha reliability coefficient was 0.838.

Supervisor Attitudes and Characteristics Scale. Examination of the eigenvalues and the scree plot indicated that a single-factor solution fit the data best. Results from the initial factor analysis indicated that factor loadings, which ranged from 0.396 to 0.883, were adequate. Examination of communalities revealed that one of the items ("In my organization, CHWs participate on hiring panels when CHW supervisors are selected") had a communality of 0.157, well below the recommended threshold of 0.4.[22] We considered why the item was included as part of the scale and the possibility that the item was not related to the other items. Members of the CHW-CRE leadership team suggested that the problematic item might measure a construct related to organizational policy regarding hiring, whereas the other items measure a construct related to supervisor attitudes and characteristics.

We proceeded to rerun the factor analysis after dropping the problematic item. Again, factor loadings were adequate (and improved from the initial model), ranging from 0.715 to 0.883. All communalities were above the 0.4 threshold level and ranged from 0.511 to 0.780. Factor loadings and communalities are displayed in Table 1. The Cronbach alpha reliability coefficient was 0.932. A decision was made to drop this item from the scale.

Descriptive Statistics for Common Indicators

Descriptive results for Common Indicators 1, 4, 5, and 12 are presented in Table B (available as a supplement to the online version of this article at http://www.ajph.org) and Figures 1 through 3.

Common Indicator 1: Compensation, Benefits and Opportunities for Advancement. CCR CHW survey respondents received an average wage of $22.33 per hour. Almost 80% of respondents were provided with health insurance and more than 50% reported having the following benefits: vacation, sick leave, dental insurance, transportation or mileage reimbursement, a retirement/pension fund, and family leave. Approximately 42% were eligible for promotions with pay increases. Large majorities reported that they would like to see changes in pay (85.9%) and benefits (60.1%), whereas less than half would like to see changes in hours (32.1%) and status (e.g., part- or full-time; 34.2%). Of those who indicated that they would like changes to their part-time or full-time status, the majority (55.5%) reported working less than 40 hours per week.

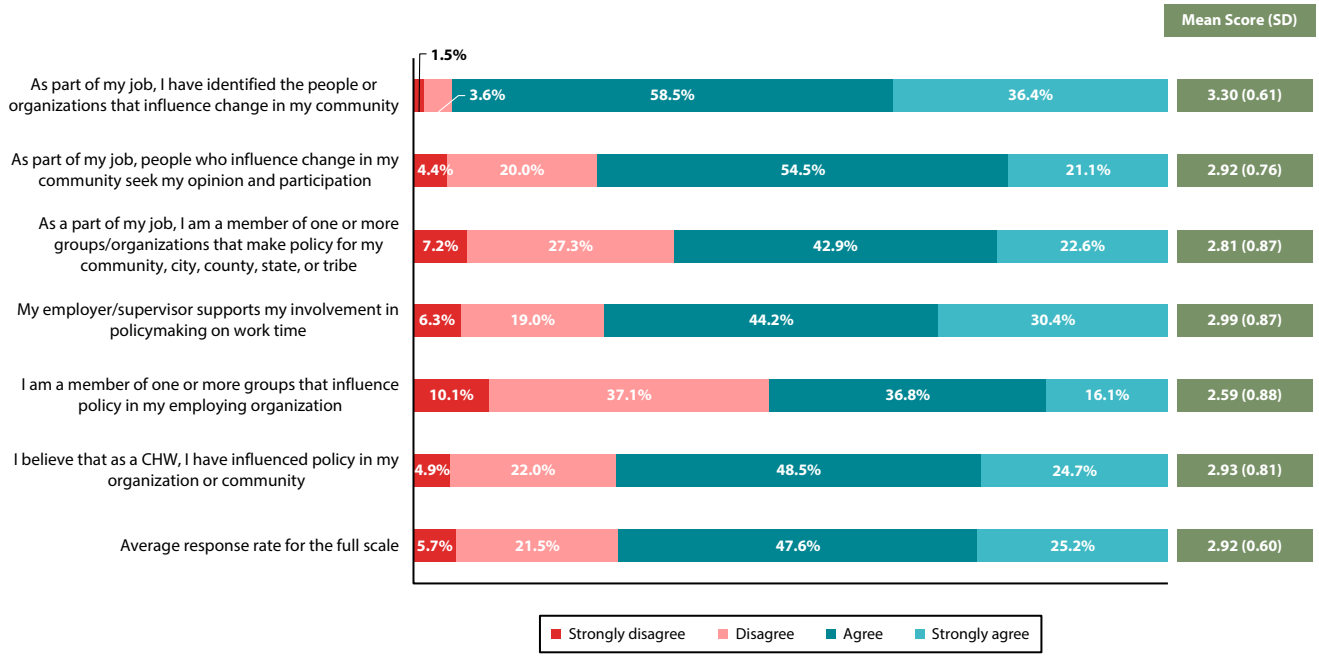


FIGURE 1— CHW Involvement in Decision- and Policymaking Scale: United States, February 12–March 29, 2024

Note. CHW = community health worker.

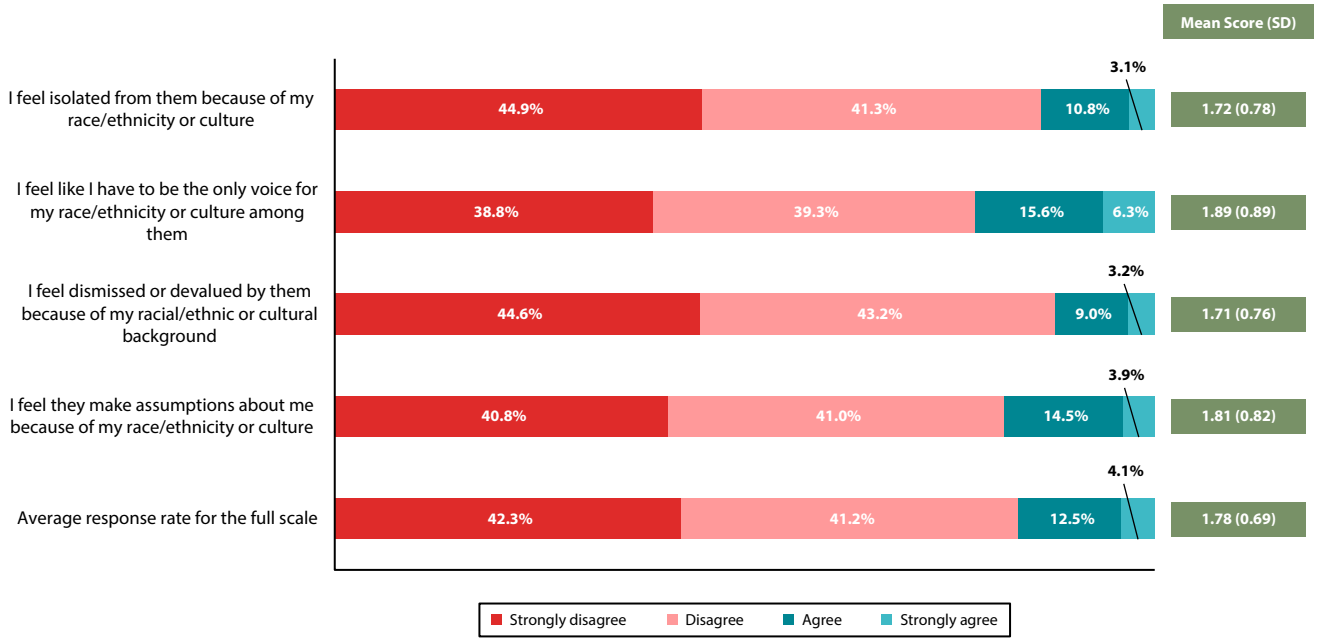


FIGURE 2— Influence of Racism and Other Forms of Discrimination on Integration Scale: United States, February 12–March 29, 2024

Common Indicator 4: CHW Involvement in Decision- and policymaking. Mean scores for the 6 scale items ranged from a low of 2.59 ("I am a member of one or more groups that influence policy in my employing organization") to a high of 3.30 ("As part of my job, I have identified the people or organizations that influence change in my community"). The mean score for the scale was 2.92, indicating moderately strong policy involvement.

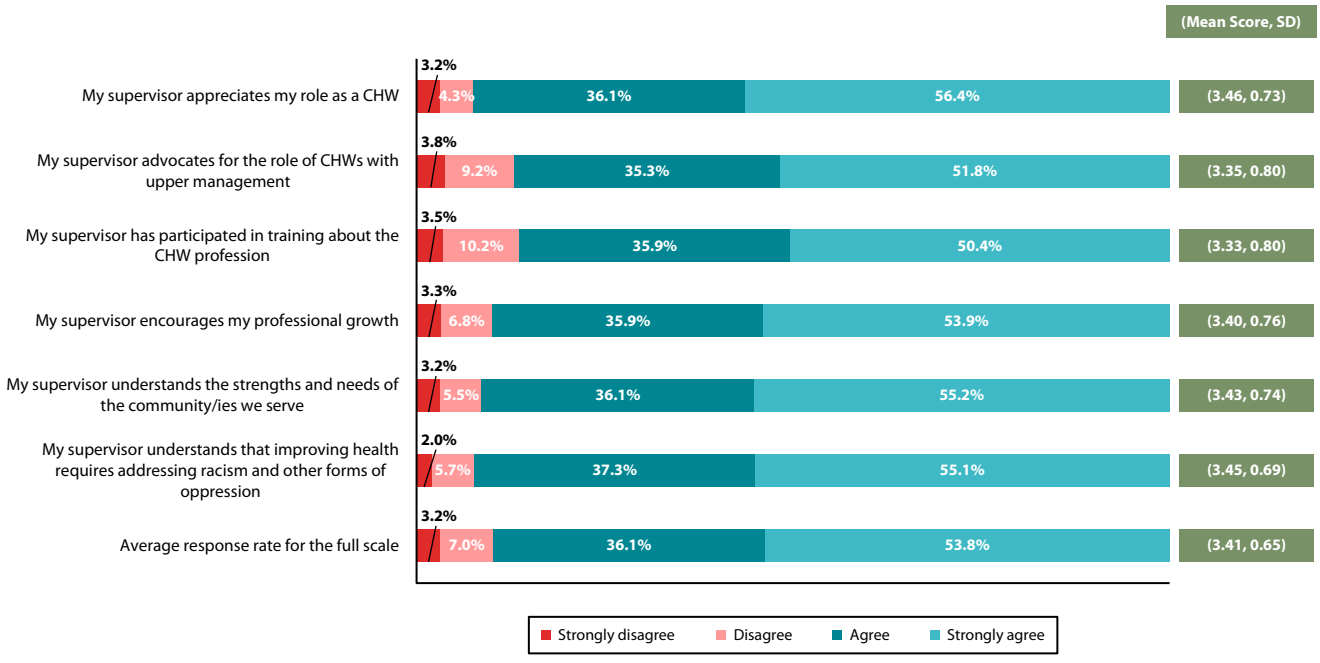


FIGURE 3— Supervisor Attitudes and Characteristics Scale: United States, February 12–March 29, 2024

Note. CHW = community health worker.

Common Indicator 5: CHW Integration into Teams. Influence of Discrimination scale results indicated relatively low levels of discrimination based on race/ethnicity and culture; the highest percentage of respondents (22.1%) either agreed or strongly agreed that they had to be the only voice for their race/ethnicity or culture among their colleagues. The mean score for the 4-point scale was 1.76, well below the midpoint.

Regarding the nonscalar components of Indicator 5, almost 80% of respondents agreed or strongly agreed that the other health and social service providers with whom they work understand their roles and what they do as CHWs; an even greater percentage (88.2%) agreed or strongly agreed that they feel comfortable discussing program participants' needs with those other providers. In response to questions about tools and space to do their work, 87.0% of respondents indicated that they were able to record information in their employers' primary database, 87.8% indicated that they had access to space to meet with participants, 96.8% reported that they had space to complete paperwork, 93.8% indicated that they had space to make phone calls, and 95.5% reported that they had space or an office to access a computer.

Common Indicator 12: Supportive and Reflective Supervision. Well over 80% of respondents agreed or strongly agreed with each item on the Supervisor Characteristics scale, indicating strong endorsement of supervisor appreciation, support, and advocacy for CHWs. The mean score for the scale (3.41) reaffirms this endorsement. Regarding the item that was deleted from the scale, almost 51% of respondents agreed or strongly agreed that, in their organizations, CHWs participate on hiring panels for CHW supervisors.

DISCUSSION

Comparing CHW workplace conditions across states or between states and the nation is inherently problematic given that many of the factors affecting CHW workplace conditions are related to state policy. For example, there is evidence that instituting state CHW certification leads to higher wages.[9] It stands to reason that requiring training or previous experience as a CHW for supervisors, as some states do, would improve supervision.[11] Establishing a CHW scope of practice, another state-by-state policy, may reinforce CHWs' professional identity and therefore promote better integration into teams.[26]

Taking these considerations into account, it is possible to make some cautious comparisons between our results and those of past studies. Because the motivation for the creation of the CHW Common Indicators was to facilitate "apples to apples" comparisons, we focus on those comparisons. The 3 states in which the CHW Common Indicators have been used in statewide surveys and for which findings were available at the time of this writing are states that have certification (Oregon, New Hampshire, and Illinois).[13–15]

At $22.33 per hour, the average wage reported by CCR CHWs was lower than the average hourly wage of $25.40 reported by the US Bureau of Labor Statistics,[27] which is based on data provided by employers. A statewide CHW survey conducted in New Hampshire that incorporated a convenience sample (n = 60) and included Common Indicator 1 revealed an average hourly wage of $22.90,[14] whereas a statewide survey conducted in Oregon involving the same indicator and a convenience sample (n = 362) produced an average hourly wage of $26.70.[13]

The availability of benefits for CCR CHWs was somewhat lower than what has been reported in previous surveys involving the Common Indicators. Whereas high percentages of CHWs responding to the New Hampshire survey reported having access to vacation (97%), health insurance (95%), and dental insurance (88%),[14] the corresponding percentages for CCR CHWs were 77%, 79%, and 69%, respectively. Forty-two percent of CCR CHWs reported being eligible for promotions with pay increases; the corresponding percentages for New Hampshire and Oregon[13] were 64% and 47%. There was strong endorsement across all 3 studies for changes in pay.

CHW Involvement results in this study closely mirror results from Oregon and Illinois, where the same 2 items were scored lowest and highest with very similar item means (2.55 and 3.22 for Oregon,[13] 2.5 and 3.2 for Illinois,[15] 2.59 and 3.30 for the CCR sample). High and low scores were distributed somewhat differently in New Hampshire but were in the same range.[14]

Influence of Discrimination item means in this study (ranging from 1.71 to 1.89) were similar to means from New Hampshire[14] (1.44–1.59) and Illinois[15] (1.4–1.7). (Oregon means were reported differently.) Although no previous studies have directly measured the influence of discrimination on CHW integration, an American Public Health Association Policy Statement[28] suggested that as predominantly members of marginalized communities, CHWs are often the targets of racism and other forms of discrimination.

Supervisor Attitudes scores, which were generally high in this survey (range: 3.33–3.46), were similar to those reported in New Hampshire (range: 3.0–3.6), Oregon (range: 3.2–3.4), and Illinois (range: 3.0–3.2). Other studies have

focused on CHW supervision,[11] but we were unable to identify other peer-reviewed studies based on data regarding supervision collected from CHWs in the United States.

Strengths and Limitations

In addition to limitations common to all studies based on the CCR CHW survey (e.g., cross-sectional data, a nonrepresentative sample making it impossible to generalize beyond CCR CHWs), our study involves some unique limitations. We did not collect data, either in the survey or through follow-up interviews, about how aspects of CCR—such as provision of programmatic and evaluative training and technical assistance—might have been related to the workplace conditions created.

Our study also has unique strengths. Results have been reported in the gray literature from statewide studies in which the workplace-related Common Indicators were used with convenience samples; however, our study is the first to report results based on a systematic sample in a peer-reviewed journal. Although one other peer-reviewed article has explored the validity of Indicator 9 (Participant Empowerment) with the Cronbach alpha reliability coefficient and a correlation matrix,[12] this is the first time EFA has been used to initially validate any of the CHW Common Indicators. Past US-focused studies have made recommendations about supervisor qualities and skills based on literature and experience,[11] but our study provides CHWs' direct quantitative assessments of supervisor characteristics.

Research Implications

Additional studies incorporating the CHW Common Indicators can facilitate comparisons of workplace conditions across settings, types of organizations, and CHW characteristics. Further validation work using confirmatory factor analysis is needed to confirm the psychometric properties of the scalar indicators and to yield insight into the extent to which the measurement model outlined here is consistent with other CHW samples. Multiple group confirmatory factor analysis can be used to explore the extent to which the scales function equivalently across different CHW subgroups. Future studies should also directly measure the correlation between program characteristics and workplace conditions.

Public Health Implications

The results of our study suggest that federal CHW programs such as CCR have the potential to create the workplace conditions—long-term employment at a living wage, high levels of involvement in decision and policy making, genuine integration into teams, and reflective and supportive supervision—that allow CHWs to make optimum contributions to communities and the health system. They can require the utilization of best practices as well as providing funding, training, and technical assistance to facilitate those practices. In addition, federal programs such as CCR, if sustained over time, could make it possible to conduct longitudinal studies of workplace conditions and their impact on outcomes.

Conclusions

These findings from a definable large-scale sample illustrate workplace conditions that allow CHWs to be optimally effective. The EFA findings offer further refinement of the Common Indicators and suggest that they provide a practical, reliable, and valid way of measuring workplace conditions across settings and jurisdictions. The findings also suggest that a federal CHW program can help to create beneficial workplace conditions for CHWs while making it possible to compare consistent data about the CHW workforce across the nation. AJPH

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CONTRIBUTORS

N. Wiggins contributed to the writing of the article and provided input into the analysis. K. C. Stalker contributed to the writing of the article,

conducted the statistical analysis, and provided input. All of the authors reviewed and edited the article. N. Wiggins and S. Mayfield-Johnson helped to develop the Community Health Worker (CHW) Common Indicators. T. English developed data analysis standards for the CHW Common Indicators. N. Wiggins, S. Mayfield-Johnson, T. English, V. Adewumi, P. Jewell, and C. Sanchez-Lloyd were involved in piloting and developing the CHW Common Indicators. All of the authors were involved in the conceptualization of the CHW survey. N. Wiggins, K. C. Stalker, T. English, M.-E. Brown, V. Adewumi, P. Jewell, and A. M. Wilkinson-Lee were involved in developing and fielding the survey.

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Note. The contents are those of the authors and do not necessarily represent the official views of or an endorsement by the Centers for Disease Control and Prevention or the US government.

CONFLICTS OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, or publication of this article. In addition, no copyrighted material, surveys, instruments, or tools were used in the research described.

HUMAN PARTICIPANT PROTECTION

This research was approved by the institutional review board at Arizona State University and by the Office of Management and Budget of the US government.

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