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Awareness of and Confidence to Address Equity-Related Concepts Across the US Governmental Public Health Workforce

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ABSTRACT

Objective: To assess the governmental public health (GPH) workforce's awareness of and confidence to address *health equity*, *social determinants of health* (*SDoH*), and *social determinants of equity* (*SDoE*) in their work.

Design, Setting, and Participants: A nationally representative population of US local and state GPH employees (n = 41 890) were surveyed through the 2021 Public Health Workforce Interests and Needs Survey (PH WINS 2021).

Main Outcome Measures: Self-reported awareness and confidence were explored by self-identified racial and ethnic group identity, public health degree attainment, and supervisory status.

Results: GPH employees reported higher levels of awareness across concepts (*health equity*—71%, 95% confidence interval [CI]: 70.5—71.6; *SDoH*—62%, 95% CI: 62.3-63.5; *SDoE*—48%, 95% CI: 47.2-48.4) than confidence (*health equity*—48%, 95% CI: 47.8-49.0; *SDoH*—46%, 95% CI: 45.4-46.7; *SDoE*—34%, 95% CI: 33.4-34.6). Self-identified Black or African American employees reported higher confidence across all concepts (*health equity*—56%, 95% CI: 54.3-57.6; *SDoH*—52%, 95% CI: 50.8-54.1; *SDoE*—43%, 95% CI: 41.3-44.6) compared to other self-identified racial groups. Employees with a PH degree reported higher confidence across all concepts (*health equity*—65%, 95% CI: 63.8-68.8; *SDoH*—73%, 95% CI: 71.3-74.1; *SDoE*—39%, 95% CI: 36.9-40.1) compared with employees without a PH degree (*health equity*—45%, 95% CI: 44.8-46.1; *SDoH*—41%, 95% CI: 40.6-41.9; *SDoE*—33%, 95% CI: 32.6-33.8). We found an inverse relationship between supervisory status and confidence to address *SDoE*: Nonsupervisors reported higher confidence (35%, 95% CI: 29.2-31.9) than supervisors (31%, 95% CI: 29.2-31.9), managers (31%, 95% CI: 28.8-32.6), and executives (32%, 95% CI: 27.5-34.4).

Conclusion: PH WINS 2021 reveals that GPH employees are aware of equity-related concepts but lack confidence to address them. Public health agencies should build employees' confidence by prioritizing and operationalizing equity internally and externally in collaboration with communities and partners.

KEY WORDS: governmental public health workforce, health equity, Public Health Workforce Interests and Needs Survey (PH WINS), social determinants of equity, social determinants of health

Health is multidimensional and linked to every facet of human life, including employment, income, and housing, as well as access to education, transportation, food, and essential services. However, ensuring that every person in the United States has an *equitable* opportunity to obtain optimal health continues to be the nation's most intractable challenge. Differential health outcomes between racial groups—particularly between white,

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Black, and Native/Indigenous people—have "been part of the American landscape for 400 years."[1] At the nation's founding, the US Constitution established a "veritable ecology of inequality" through multiple clauses that explicitly codified chattel slavery—a practice that had been in place in North America for more than a century.[2] Racially unjust policies and practices that were adopted and implemented at federal, state, and local levels—such as the Indian Removal Act, the Black Codes, the Homestead Act, Jim Crow laws, and redlining—further cemented racial inequities in life opportunities, access, and health outcomes that continue to ripple into the present. Ever-widening racial inequities in life expectancy,[3] wealth,[4] and other measures of health and well-being make it difficult to deny that there is ongoing "proof of … hierarchy" and "evidence of social injustice."[5]

Equity is a principle that acknowledges that people and communities have been differentially impacted by a variety of circumstances, historical events, and contemporary contexts that have intentionally advantaged some, while unjustly and intentionally disadvantaging others. As a result, those who have been unjustly disadvantaged require a disproportionately greater allocation of resources and opportunities to help them achieve universal outcomes of optimal health and well-being. Equity ultimately requires that all individuals and populations are valued equally, historical injustices are recognized and rectified, and resources are provided according to need.[6] Three concepts that have been commonly used to connect equity to the discipline and practice of public health are *health equity*, the *social determinants of health (SDoH)*, and the Social *determinants of equity (SDoE)*:

- Health equity: A concept that builds on the principle of equity, *health equity* is aspirational. Defined by CityHealth (2022), health equity "is achieved when all people—regardless of who they are, where they come from, how they identify, where they live, or the color of their skin—have a fair and just opportunity to live the healthiest possible lives in body, mind, and community. Achieving health equity requires removing social, economic, contextual, and systemic barriers to health, and a continuous and explicit commitment to prioritize those affected by historical disadvantages."[7]
- Social determinants of health (SDoH): The *SDoH* include many upstream and modifiable factors that serve as "the 'terrain' on which effects play out."[3,8] Addressing the *SDoH* is considered a primary approach to achieving health equity.[9] Defined by the US Department of Health & Human Services, the *SDoH* are "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Domains of the social determinants of health can include economic stability, education access and quality, health care access and quality, neighborhood and built environment, and social and community context."[10]
- Social determinants of equity (SDoE): A term coined by Jones,[6] the *SDoE* serve as the "root causes of causes." They are "systems of power that govern the distribution of resources and populations through decision-making structures, policies, practices, norms, and values" that "often operate as social determinants of inequity by differentially distributing resources and populations." The *SDoE* include (but are not limited to) structural racism, sexism, nativism, and poverty.

Conceptual Framework: Connecting Health Equity, the SDoH, and the SDoE

To convey the connections that exist between *health equity*, the *SDoH*, and the *SDoE*, we utilize a conceptual framework (Figure) that is informed by Jones,[6] Yearby,[11] and ChangeLab Solutions.[12]

At the base of the framework are the root causes of health inequities: the *SDoE*, which fuel several fundamental drivers of health inequity. At the center sit structural tools—a variety of levers that, if deployed justly, can directly address the *SDoE*, dismantle fundamental drivers of health inequity, provide equitable access to the *SDoH,* and drive positive health and quality-of-life outcomes. Ultimately, when everyone has a fair and just opportunity to achieve positive health and quality-of-life outcomes, *health equity* can be achieved.

Awareness and Confidence: Necessary Prerequisites for the Governmental Public Health Workforce to Address Health Equity, the SDoH, and the SDoE

In the wake of a pandemic that has illuminated the breadth and depth of racial injustice—from medical racism to economic inequality to state-sanctioned violence—"the world is now in a moment that requires that it invest in a different way of doing things."[13] This apparent shift in perspective has clear public health implications: Public opinion data show that a large majority of Americans believe that health equity should be a priority and can be achieved.[14] However, to capitalize on this moment—and to create

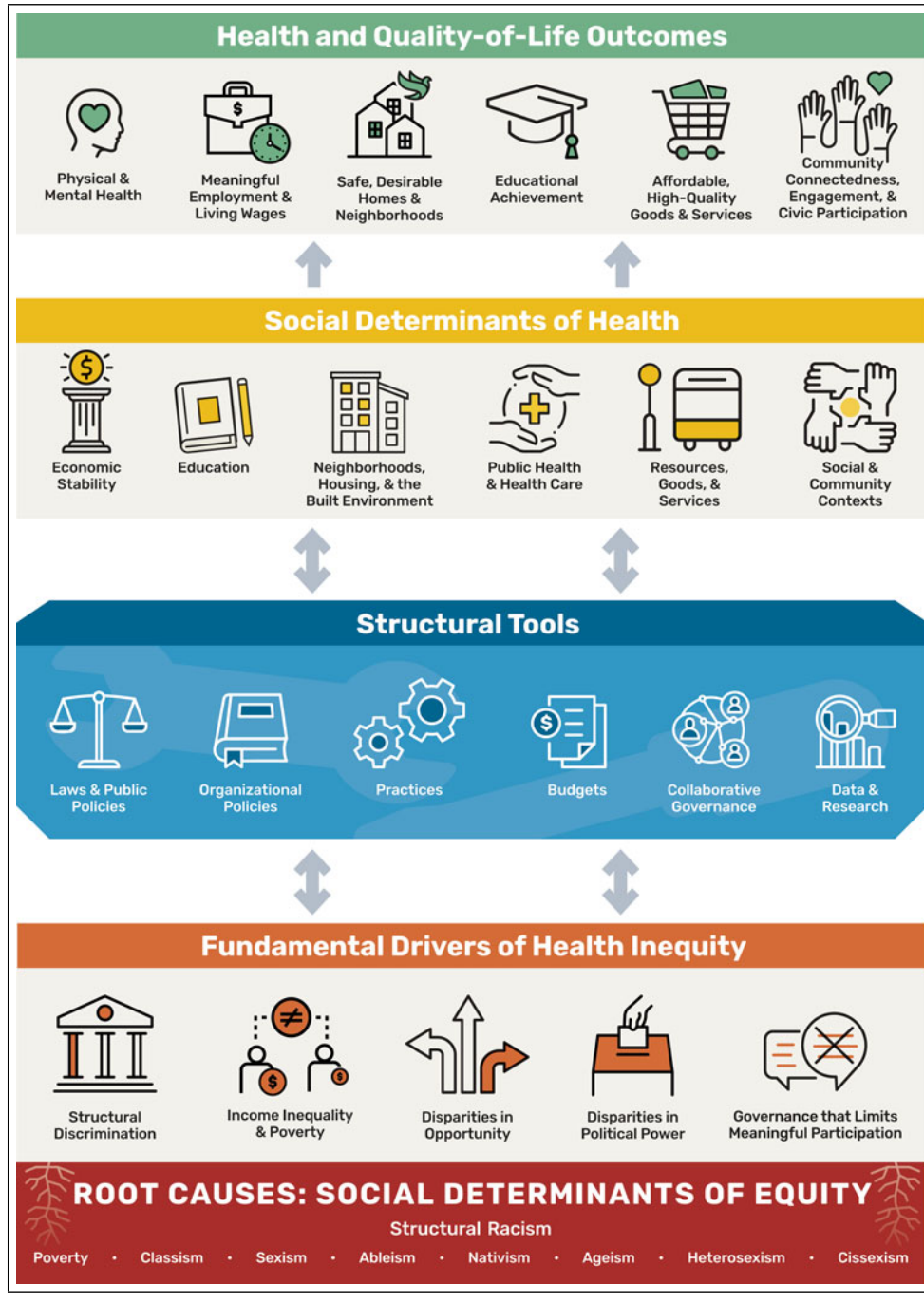

FIGURE Conceptual Framework Connecting the SDoE, Structural Tools, the SDoH, and Health and Quality-of-Life Outcomes

tangible, sustained, and equitable improvements in health—the governmental public health (GPH) workforce must be prepared to take action, and that starts with awareness and confidence to address *health equity*, the *SDoH*, and the *SDoE* in their daily work.

GPH practitioners cannot avoid confronting the "mechanisms and determinants of health inequity … if we are to ensure that all populations thrive."[15] Centering equity in public health will require members of the GPH workforce to take action to build lasting cross-sector partnerships, influence policy processes, and ensure that other government agencies address the health equity implications of their policies and decisions.[16] Both awareness and self-efficacy—the belief in one's own capabilities to act to achieve a desired outcome—are directly related to action.[17,18]

According to Albert Bandura's social cognitive theory,[19] perceived self-efficacy reflects the "confidence that one can employ the skills necessary...to meet the situational demands." Although a high degree of perceived self-efficacy can enhance motivation to act, a low degree of perceived self-efficacy can undermine it.[20]

The Public Health Workforce Interests and Needs Survey

Despite its importance, knowledge of how and to what extent the GPH workforce centers equity in its work is limited. In 2017, Narain et al[21] interviewed lead public health officials and their designees across 25 health departments: 22 local health departments (LHDs) and 3 state health departments. They found that 21 of the 25 health departments reported being actively engaged in activities to improve health equity.[21] Furtado et al[22] surveyed more than 500 chronic disease practitioners working in state health departments on health equity commitments, partnerships, and needed skills. They found that only 11% of state-level chronic disease practitioners agreed that health equity fell within their purview, only 9% included health equity as one of their multiple work areas, and fewer than 2% worked primarily on health equity.[22]

The Public Health Workforce Interests and Needs Survey (PH WINS) is the first and only nationally representative data source that describes the GPH workforce. Administered by the de Beaumont Foundation and the Association of State and Territorial Health Officials (ASTHO), PH WINS provides insights into GPH employees' perspectives on their workplaces, mental health, training needs, and public health issues that are relevant to their work. In its third administration in 2021, PH WINS added a new module, "Addressing Issues in Public Health," which focused on GPH employees' awareness of and confidence to address a variety of concepts relevant to public health practice. This study examines the GPH workforce's awareness of and confidence to address 3 concepts in their daily work: *health equity*, the *SDoH*, and the *SDoE*.

Methods

PH WINS 2021 was sent to 137 446 individuals in the GPH workforce employed by 47 state health agency central offices (SHA-CO), 29 health departments that are members of the Big Cities Health Coalition (Big Cities), and 262 LHDs. PH WINS 2021 received 44 732 responses—more than a third (35%) of eligible respondents. Agencies and departments across the United States were invited to participate using a mix of certainty sampling and stratified probability-based sampling. All participating agencies were surveyed using a census approach. Balanced repeated replication weights were constructed and applied to analyses to account for the complex sampling design and to adjust for nonresponse.

PH WINS 2021 collected demographic information on individuals within the GPH workforce. Although they are social constructs with no biological meaning, race and ethnicity may be useful in efforts to study and understand racism and related health inequities.[23] To that end, compiling information about the racial and ethnic demographics of the GPH workforce can help government agencies better understand the extent to which the GPH workforce reflects the communities it serves. Furthermore, understanding the many identities and experiences that employees bring to their work is necessary due to the US legacy of *structural racism*, an entrenched and multifaceted system in which public and organizational policies, institutional practices, cultural representations, and other structures collectively maintain a racial hierarchy that allows the privileges associated with "whiteness" and the disadvantages associated with "color" to endure and adapt over time.[24,25] Given the connections between structural racism and the well-established inequities experienced by individuals who are not socially assigned "white,"[26] respondents to PH WINS 2021 were asked to voluntarily self-identify their race and ethnic identities from a list of options, which were defined by the US Census Bureau.[27]

Respondents were provided with definitions of each concept in the survey and asked to rate their level of awareness* and their level of confidence to address each concept in their work† using 4-point Likert scales. Participants who responded "Not at all" on the awareness scale for any concept were not provided with the confidence scale for that concept. Prior to survey administration, cognitive interviews were conducted with 12 individuals representing 4 SHA-COs, 6 LHDs, and 2 external stakeholders to test perceptions of specific questions.

Descriptive statistics were calculated for the entire survey sample (Table 1) and for each concept by awareness and confidence levels (Table 2). Descriptive statistics were then calculated for all demographic variables of interest, which were racial and ethnic group identity, post–secondary public health degree

*Awareness Likert scale options included: "Not at all," "Not much," "A little," and "A lot."

†Confidence Likert scale options included: "I do not know this concept," "Not confident," "A little confident," and "Very confident."

TABLE 1
Demographics and Workforce Characteristics of Governmental Public Health Workers, PH WINS 2021 (N = 189 326)[a]

	SHA-CO		Big Cities		LHDs		National	
	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)
Gender identity								
Man	22.2	21.5-23.0	22.3	21.2-23.4	16.6	15.9-17.3	19.7	19.2-20.1
Woman	75.7	74.9-76.5	75.8	74.7-76.9	81.8	81.1-82.5	78.6	78.1-79.0
Some other way	2.0	1.8-2.3	1.9	1.6-2.3	1.5	1.3-1.8	1.8	1.6-1.9
Racial and ethnic group identity								
American Indian or Alaska Native	1.2	1.0-1.4	0.6	0.5-0.9	1.0	0.8-1.2	0.9	0.8-1.1
Asian	6.9	6.5-7.4	14.8	13.9-15.7	3.8	3.4-4.2	7.4	7.1-7.7
Black or African American	10.9	10.4-11.5	23.3	22.2-24.5	14.0	13.4-14.7	15.3	14.9-15.8
Hispanic or Latino	11.1	10.5-11.7	23.5	22.4-24.6	19.6	18.8-20.3	18.0	17.5-18.5
Native Hawaiian or other Pacific Islander	0.4	0.3-0.6	0.5	0.4-0.7	0.3	0.2-0.4	0.4	0.3-0.4
White	65.4	64.5-66.3	32.2	31.0-33.4	57.3	56.4-58.2	53.7	53.7-54.3
2 or more races	4.0	3.7-4.4	5.1	4.5-5.7	4.1	3.8-4.4	4.3	4.1-4.5
Age, y								
<21	0.1	0.1-0.2	0.1	0.1-0.3	0.3	0.2-0.4	0.2	0.2-0.3
21-30	10.9	10.4-11.5	13.1	12.2-14.0	14.4	13.8-15.2	13.1	12.6-13.5
31-40	23.5	22.7-24.3	27.3	26.1-28.5	22.6	21.8-23.4	24.0	23.5-24.5
41-50	25.0	24.2-25.8	25.5	24.3-26.6	25.0	24.1-25.9	25.1	24.6-25.7
51-60	26.7	25.9-27.5	22.9	21.8-24.1	25.0	24.2-25.9	25.0	24.5-25.6
61+	13.7	13.0-14.4	11.1	10.3-12.0	12.6	12.0-13.3	12.6	12.2-13.0
Tenure in public health practice, y								
0-5	33.4	32.5-34.3	35.3	34.1-36.6	38.3	37.4-39.2	36.1	35.5-36.7
6-10	19.9	19.1-20.6	19.2	18.2-20.3	17.5	16.8-18.2	18.6	18.2-19.1
11-15	14.1	13.5-14.7	14.0	13.1-14.9	13.3	12.7-14.0	13.7	13.3-14.1
16-20	11.6	11.0-12.2	11.1	10.4-12.0	11.4	10.8-12.0	11.4	11.0-11.8
≥21	21.1	20.3-21.8	20.3	19.2-21.3	19.5	18.8-20.2	20.1	19.7-20.6
Public health degree (bachelor's/master's/doctoral degree)								
No	82.6	82.0-83.3	80.6	79.5-81.6	90.7	90.2-91.3	85.9	85.5-86.3
Yes	17.4	16.7-18.0	19.4	18.4-20.5	9.3	8.7-9.8	14.1	13.7-14.5
Supervisory status								
Nonsupervisor	70.3	69.5-71.1	71.0	69.8-72.1	75.8	75.0-76.5	73.0	72.5-73.5
Supervisor	17.5	16.8-18.2	17.9	16.9-18.9	15.3	14.7-16.0	16.6	16.2-17.0
Manager	10.2	9.7-10.8	9.1	8.4-9.9	6.3	5.9-6.8	8.2	7.9-8.5
Executive	2.0	1.7-2.2	2.0	1.7-2.4	2.6	2.3-2.9	2.3	2.1-2.5

Abbreviation: CI, confidence interval.

[a] *Weighted counts by setting: state health agency central offices (SHA-CO) = 56 932; Big Cities = 45 325; local health departments = 87 069.*

attainment, and supervisory status[‡] (see Supplemental Digital Content Appendix Table 1, available at http://links.lww.com/JPHMP/B81). Comparisons between overall awareness and confidence to apply concepts by select demographic variables were made using a Rao Scott–adjusted chi-square.

Estimates of proportions of awareness and confidence levels over all variables of interest for each concept were also calculated. The variable of awareness for each concept was dichotomized as "Low Awareness" and "High Awareness"; respondents who selected "Not at all," 'Not much," and "A little" were collapsed into the category "Low Awareness" and

[‡]Participants self-selected their supervisory status from a list with the following options: (1) nonsupervisor: you do not supervise other employees; (2) supervisor: you are responsible for employees' performance appraisals and approval of their leave, but you do not supervise other supervisors; (3) manager: you are in a management position and supervise 1 or more supervisors; and (4) executive: member of senior executive service or equivalent.

TABLE 2
Overall Awareness of Public Health Concepts and Confidence in Application Among Governmental Public Health Employees, PH WINS 2021 (N = 189 326)

	Awareness of Concept		Confidence in Application	
	Percentage	(95% CI)	Percentage	(95% CI)
Health equity				
Not at all/I do not know this concept	3.6	3.4-3.9	2.3	2.1-2.5
Not much/not confident	5.8	5.5-6.1	10.8	10.4-11.1
A little/a little confident	19.6	19.1-20.0	38.6	38.0-39.1
A lot/very confident	71.0	70.5-71.6	48.4	47.8-49.0
Social determinants of health				
Not at all/I do not know this concept	5.7	5.4-6.0	2.9	2.7-3.2
Not much/not confident	9.0	8.7-9.3	14.0	13.6-14.4
A little/a little confident	22.4	21.9-22.9	37.0	36.4-37.6
A lot/very confident	62.3	62.3-63.5	46.0	45.4-46.7
Social determinants of equity				
Not at all/I do not know this concept	8.0	7.7-8.3	3.9	3.7-4.2
Not much/not confident	14.3	13.9-14.7	20.1	19.7-20.6
A little/a little confident	29.9	29.3-30.4	42.0	41.4-42.6
A lot/very confident	47.8	47.2-48.4	34.0	33.4-34.6

Abbreviation: CI, confidence interval.

respondents who selected "Very aware" were renamed "High Awareness" (Table 3). The variable of confidence for each concept was dichotomized as "Low Confidence" and "High Confidence"; respondents who selected "I do not know this concept," 'Not confident," and "A little confident" were collapsed into the category "Low Confidence" and respondents who selected "Very confident" were renamed "High Confidence" (Table 4). Data were cleaned, managed, and analyzed in Stata 17 (StataCorp LLC, College Station, Texas).

Results

Nationally, the state and local GPH workforce predominantly self-identifies as non-Hispanic white (54%, 95% confidence interval [CI]: 53.7-54.3); women (79%, 95% CI: 78.1-79.0); those older than 40 years (63%, 95% CI: 62.1-63.3); lacking a post–secondary degree in public health (86%, 95% CI: 85.5-86.3); and nonsupervisors (73%, 95% CI: 72.5%-73.5%).

Descriptive statistics were calculated on the entire survey sample to explore overall awareness of and confidence to address the concepts of *health equity*, the *SDoH*, and the *SDoE* (Table 2). Governmental public health employees were generally aware of all 3 concepts but lacked confidence in their ability to address these concepts in their work. Nearly three-quarters of GPH employees had heard "A lot" about *health equity* (71%, 95% CI: 70.5-71.6), and 62% had heard "A lot" about the *SDoH* (95% CI: 62.3-63.5). However, awareness of the *SDoE* among GPH employees was substantially lower. Fewer than half of GPH employees had heard "A lot" about the *SDoE* (48%, 95% CI: 47.2-48.4).

Compared with awareness, GPH employees' confidence to address these concepts in their work was far lower. Fewer than half of all GPH employees were "Very confident" in their ability to address *health equity* in their work (48%, 95% CI: 47.8-49.0). Governmental public health employees expressed a similar level of confidence in addressing the *SDoH* in their work (46%, 95% CI: 45.4-46.7). Only a third of GPH employees were "Very confident" in their ability to address the *SDoE* in their work (34%, 95% CI: 33.4-34.6).

Awareness of and confidence to address concepts by demographic category

Racial and ethnic group identity

Estimates of proportions were calculated for awareness and confidence across all variables of interest (Tables 3 and 4). Governmental public health employees who self-identified as white reported the highest level of awareness of *health equity* and the *SDoH* compared with their colleagues who self-identified as members of other racial and ethnic groups (*health equity*—73%, 95% CI: 72.1-73.5; *SDoH*—66%,

TABLE 3

Awareness of Public Health Concepts by Demographic Characteristics Among the Governmental Public Health Workforce, PH WINS 2021 (N = 189 326)

	Health Equity: Low Awareness		Health Equity: High Awareness		SDoH: Low Awareness		SDoH: High Awareness		SDoE: Low Awareness		SDoE: High Awareness	
	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)
Racial and ethnic group identity												
American Indian or Alaska Native	33.5	27.9-39.6	66.5	60.4-72.2	40.4	34.6-46.6	59.6	53.4-65.4	51.5	45.3-57.6	48.5	42.4-54.7
Asian	29.1	27.1-31.2	70.9	68.8-73.0	39.0	36.8-41.2	61.0	58.8-63.2	53.8	51.5-56.1	46.2	43.9-48.5
Black or African American	29.1	27.8-30.6	70.9	69.5-72.3	39.0	37.5-40.6	61.0	59.4-62.5	50.8	49.2-52.4	49.2	47.6-50.8
Hispanic or Latino	32.8	31.4-34.2	67.2	65.8-68.6	41.6	40.2-43.1	58.4	56.9-59.8	52.5	51.0-53.9	47.6	46.1-49.0
Native Hawaiian other Pacific Islander	38.9	30.4-48.1	61.1	51.9-69.6	40.8	32.3-50.0	59.2	50.0-67.7	49.0	40.1-58.0	51.0	42.0-59.9
White	27.2	26.5-27.9	72.8	72.1-73.5	34.5	33.7-35.2	65.5	64.8-66.3	52.7	51.9-53.5	47.3	46.5-48.1
2 or more races	31.6	29.0-34.3	68.4	65.7-71.0	39.1	36.4-41.9	60.9	58.1-63.7	48.1	45.3-51.0	51.9	49.0-54.7
PH degree (bachelor's/master's/doctoral degree)												
No	32.9	32.3-33.5	67.1	66.5-67.7	42.3	41.6-42.9	57.7	57.1-58.4	53.5	52.9-54.2	46.5	45.9-47.1
Yes	5.3	4.7-6.0	94.7	94.0-95.3	6.0	5.3-6.7	94.1	93.3-94.8	44.1	42.5-45.7	55.9	54.4-57.5
Supervisory status												
Nonsupervisor	32.1	31.4-32.7	67.9	67.3-68.6	40.3	39.6-41.0	59.7	59.0-60.4	52.5	51.8-53.2	47.5	46.7-48.2
Supervisor	24.6	23.4-25.9	75.4	74.1-76.6	33.5	32.1-34.8	66.6	65.2-67.9	52.2	50.7-53.6	47.8	46.4-49.3
Manager	16.5	15.0-18.1	83.5	81.9-85.0	22.9	21.3-24.7	77.1	75.3-78.8	50.6	48.6-52.6	49.5	47.5-51.5
Executive	7.8	5.6-10.8	92.2	89.3-94.4	12.8	10.1-16.0	87.3	84.0-89.9	46.8	42.8-50.7	53.3	49.3-57.2

Abbreviations: CI, confidence interval; SDoE, social determinants of equity; SDoH, social determinants of health.

TABLE 4
Confidence in Application of Public Health Concepts by Demographic Characteristics Among the Governmental Public Health Workforce, PH WINS 2021 (N = 189 326)

	Health Equity: Low Confidence		Health Equity: High Confidence		SDoH: Low Confidence		SDoH: High Confidence		SDoE: Low Confidence		SDoE: High Confidence	
	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)	Percentage	(95% CI)
Racial and ethnic group identity												
American Indian or Alaska Native	46.6	40.3-53.0	53.4	47.0-59.7	53.0	46.-59.25	47.1	40.8-53.5	62.4	55.9-68.4	37.6	31.6-44.1
Asian	54.0	51.6-56.3	46.0	43.7-48.4	55.8	53.5-58.2	44.2	41.9-46.5	68.3	66.1-70.5	31.7	29.5-33.9
Black or African American	44.1	42.5-45.7	55.9	54.3-57.6	47.6	45.9-49.2	52.4	50.8-54.1	57.0	55.4-58.7	43.0	41.3-44.6
Hispanic or Latino	52.1	50.6-53.6	47.9	46.4-49.4	55.4	53.9-56.9	44.6	43.1-46.1	64.4	63.0-65.9	35.6	34.2-37.1
Native Hawaiian or other Pacific Islander	60.8	51.3-69.5	39.3	30.5-48.7	66.6	57.4-74.7	33.4	25.3-42.6	72.0	62.9-79.5	28.0	20.5-37.1
White	53.4	52.6-54.2	46.6	45.8-47.4	55.0	54.2-55.8	45.0	44.2-45.8	69.3	68.5-70.1	30.7	30.0-31.5
2 or more races	49.7	46.8-52.7	50.3	47.3-53.3	53.3	50.3-56.3	46.7	43.7-49.7	60.1	57.0-63.0	40.0	37.0-43.0
PH degree (bachelor's/master's/doctoral degree)												
No	54.6	53.9-55.2	45.4	44.8-46.1	58.7	58.1-59.4	41.3	40.6-41.9	66.8	66.2-67.4	33.2	32.6-33.8
Yes	34.7	33.2-36.2	65.3	63.8-66.8	27.3	25.9-28.7	72.7	71.3-74.1	61.5	59.9-63.1	38.5	36.9-40.1
Supervisory status												
Nonsupervisor	55.1	54.4-55.8	44.9	44.2-45.6	64.7	52.8-54.2	46.5	45.8-47.2	64.7	64.0-65.4	35.3	29.2-31.9
Supervisor	55.0	53.5-56.5	45.0	43.5-46.5	53.6	52.1-55.1	46.4	44.9-47.9	69.5	68.1-70.8	30.5	29.2-31.9
Manager	47.5	45.4-49.5	52.5	50.5-54.6	46.5	44.4-48.6	53.5	51.4-55.6	69.3	67.4-71.2	30.7	28.8-32.6
Executive	36.1	32.3-40.2	63.9	59.8-67.7	35.4	31.5-39.5	64.6	60.6-68.5	69.2	65.6-72.5	31.9	27.5-34.4

Abbreviations: CI, confidence interval; SDoE, social determinants of equity; SDoH, social determinants of health.

95% CI: 64.8-66.3). However, GPH employees who self-identified as Black or African American reported the highest levels of confidence to address *health equity*, the *SDoH*, and the *SDoE* in their work compared with their colleagues who self-identified as members of other racial and ethnic groups (*health equity*—56%, 95% CI: 54.3-57.6; *SDoH*—52%, 95% CI: 50.8-54.1; *SDoE*—43%, 95% CI: 41.3-44.6).

Post–secondary public health degree attainment

Governmental public health employees with a bachelor's, master's, or doctoral degree in public health reported higher levels of awareness and confidence in their ability to address each concept in their work compared with GPH employees who lacked post–secondary public health degrees. Ninety-five percent of GPH employees with public health degrees were highly aware of *health equity* (95% CI: 94.0-95.3), compared with 67% of GPH employees who lacked a public health degree (95% CI: 66.5-67.7). Sixty-five percent of GPH employees with a public health degree were highly confident in their ability to address *health equity* in their work (95% CI: 63.8-66.8), compared with 45% of their colleagues who lacked a public health degree (95% CI: 44.8%-46.1%). Similarly, 73% of GPH employees with public health degrees were highly confident in their ability to address the *SDoH* in their work (95% CI: 71.3-74.1) compared with 41% of employees without a public health degree (95% CI: 40.6-41.9). However, when surveyed about their confidence to address the *SDoE*, the divergence between the 2 groups narrowed: Only 39% of GPH employees with a public health degree were highly confident in their ability to address the *SDoE* in their work (95% CI: 36.9-40.1)—just slightly more than the 33% of employees who lacked a public health degree (95% CI: 32.6-33.8).

Supervisory status

As supervisory status increased, the number of GPH employees who were highly aware of *health equity*, *SDoH*, and *SDoE* increased. Among executives, 92% (95% CI: 89.3-94.4) were highly aware of *health equity* compared with 68% of nonsupervisors (95% CI: 67.3-68.6). Furthermore, 64% of executives were highly confident in their ability to address *health equity* (95% CI: 59.8-67.7) compared with 45% of nonsupervisors (95% CI: 44.2-45.6).

However, we found an inverse relationship between supervisory status and confidence to address the *SDoE*. As supervisory status increased, self-reported confidence to address the *SDoE* decreased. Nonsupervisors reported higher levels of confidence in their ability to address the *SDoE* in their work (35%, 95% CI: 29.2-31.9) compared with supervisors (31%, 95% CI: 29.2-31.9), managers (31%, 95% CI: 28.8-32.6), and executives; (32%, 95% CI: 27.5-34.4).

Discussion and Conclusion

As a survey of more than 41 000 state and local GPH agency staff, PH WINS 2021 offers first-of-a-kind insights into GPH employees' awareness of and confidence to address *health equity*, the *SDoH,* and the *SDoE* in their work. The GPH workforce was generally aware of all 3 concepts, particularly *health equity* and the *SDoH*. However, overall, GPH employees were comparatively less confident in their ability to address all 3 concepts in their work, particularly the *SDoE*.

The public health field faces significant challenges in attempting to translate equity-related knowledge and values into real-world changes in public health policy and practice that are necessary to advance *health equity*.[28] Most public health agencies and professionals tend to focus interventions mainly on behavioral risks.[29] This focus on "lifestyle drift"—the "tendency in public health to focus on individual behaviors, such as smoking, diet, alcohol, and drugs" and "to ignore the drivers of these behaviors"—has been cited as a key barrier that prevents public health as a field from moving forward to address the *SDoH*, the *SDoE*, and *health equity*.[30] As PH WINS 2017 revealed, GPH employees have avoided addressing the *SDoH*: Although 57% of GPH agency staff believed that their agencies should be "very involved" in addressing *health equity*, far fewer believed that they should be involved in addressing specific *SDoH,* such as transportation, housing, K-12 education, or the built environment.[31] Further research has found that GPH employees are reticent to identify specific actions to address health inequities and the *SDoH*.[28]

Our study provides new insights into the relationship between supervisory status and confidence to address the *SDoE*. Although awareness of all 3 concepts increased as supervisory status increased, an inverse relationship existed between supervisory status and confidence to address the *SDoE*. This indicates that public health agency leaders' confidence to take on complex and entrenched systems embodied by the *SDoE* wanes as they climb the ranks. This finding is a cause for deep concern, given that GPH agency leaders are well positioned to implement actions that address the *SDoE*. More research is needed to fully understand this phenomenon. As the nation continues to navigate the COVID-19 pandemic, continued political challenges to GPH authority[32] may limit their ability to demonstratively address the *SDoE*. These limitations in authority may not only hamstring public

health agencies but may also erode the willingness of public health leaders to make politically unpopular decisions that are necessary to address the *SDoE*.

Our study also conveys the value—and limitations—of having post–secondary public health education within the GPH workforce. PH WINS 2021 revealed that nearly 90% of the GPH workforce lacks a post–secondary public health degree at the undergraduate level or above.[33] Given that most of the GPH workforce lacks post–secondary public health education, the need for high-quality, on-the-job training is an imperative. Moreover, our study revealed that GPH employees with public health degrees reported substantially greater levels of awareness and confidence to address all 3 concepts in their work compared to employees who lacked public health degrees. However, when surveyed about the *SDoE*, the differences between the groups narrowed substantially, indicating that academic programs may be falling short when it comes to inculcating public health students with knowledge about the systems of power that ultimately drive health inequities. As a result, public health agency investments in equity-focused workforce training will be essential to increase employees' awareness of and confidence to address the *SDoE*.

Although PH WINS 2021 had a modest response rate of 35%, balanced repeated replication weights were applied to account for nonresponse and complex sampling. In addition, the survey was fielded during the COVID-19 pandemic from September 2021 to January 2022, and the GPH workforce was deeply involved in the emergency response. The substantial burden and time constraints inflicted by the response may have limited the extent to which GPH employees could participate in the survey. In addition, PH WINS 2021 measured GPH employees' self-perception of their awareness and confidence to address concepts related to equity, and responses to these questions were not required for survey completion; thus, the potential for social desirability and response bias must be considered when interpreting results. To mitigate confusion in interpreting survey questions, definitions of each concept were provided to all survey respondents. Finally, cognitive interviews were conducted with key stakeholders to test the clarity of questions prior to survey administration.

State and local GPH agencies are critical to the delivery of essential services that support population health[34]; as such, they must be actively engaged in dismantling systemic and structural barriers to health. Public health agencies can help build confidence across the GPH workforce to address *health equity*, the *SDoH*, and the *SDoE* by prioritizing these concepts publicly, operationalizing them internally, partnering to address them multisectorally, and investing resources in marginalized communities consistently. By making these concepts a central and sustained focus of their work, public health agencies—and the workforce that powers them—can make progress toward advancing health equity for all.

Implications for Policy & Practice

- This study provides initial data and highlights opportunities for health department leaders and decision makers to increase the governmental public health (GPH) workforce's awareness of and confidence to address *health equity*, the social determinants of health (*SDoH*), and the social determinants of equity (*SDoE*).
- Given that *health equity* cannot be achieved without addressing the *SDoE*, GPH agencies will need to build employees' confidence by prioritizing and operationalizing equity internally (by transforming policies, operations, and trainings) and externally in their interactions and engagement with partners and marginalized communities.
- Confidence to address the *SDoE* was relatively low among GPH employees, even among those with post–secondary public health education. Schools and programs of public health will need to intensify their focus on the *SDoE* and their impact on health outcomes in their academic curricula to ensure that public health students are confident and prepared to take on these complex issues.
- Public health agencies—and state, city, and county governments more broadly—will need to contend with the continued legislative threats to GPH governance, policy, and legal authority, as these threats have the potential to adversely impact public health agency leaders' ability, and by extension confidence, to address the *SDoE*.

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