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Participatory survey design of a workforce health needs assessment for correctional supervisors

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Abstract

Introduction: The correctional workforce experiences persistent health problems, and interventions designed with worker participation show favorable outcomes. However, participatory intervention research often leaves workers out of the health needs assessment, the basis of interventions subsequently developed. This omission risks failure to detect factors contributing to the health and is less likely to result in primary prevention interventions.

Methods: Partnering with a correctional supervisors' union, we followed Schulz and colleagues' community-based participatory research (CBPR) methods for participatory survey design and used *Healthy Workplace Participatory Program* (HWPP) tools to develop a tailored survey to assess workforce health and contributing factors. Utilizing the *HWPP Focus Group Guide*, we generated key themes to adapt the *HWPP All Employee Survey*, a generic workforce health assessment, to become thorough and contextually-relevant for correctional supervisors.

Results: Content analysis of focus group data revealed 12 priority health concerns and contributors, including organizational culture, masculinity, work-family conflict, family support, trauma, positive job aspects, health literacy and efficacy, health/risk behaviors, sleep, obesity, and prioritizing work and income over health. Twenty-six measures were added to the generic survey, mainly health-related antecedents including knowledge, attitudes, norms, and motivation.

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AUTHOR CONTRIBUTIONS

Alicia G. Dugan, Sara Namazi, Robert D. Rinker, Julius C. Preston, and Vincent L. Steele contributed to the conception of the scientific questions, design of the work, and interpretation of results. Alicia G. Dugan and Sara Namazi contributed to data analysis approach and performed data analysis. Alicia G. Dugan, Sara Namazi, Jennifer M. Cavallari, and Martin G. Cherniack contributed to manuscript preparation and revisions, and interpretation of results.

ETHICS APPROVAL AND INFORMED CONSENT

The Institutional Review Board at the University of Connecticut School of Medicine approved the study protocol, and written informed consent was obtained. Protocol number: IE-13–033S-2.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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Conclusion: Findings yielded new insights about supervisors' lived experiences of work and health, and resulted in a customized workforce survey. CBPR methods and HWPP tools allowed us to identify health issues that we would not have detected with conventional methods, and provide opportunities for interventions that address root causes of poor health. We share challenges faced and lessons learned using CBPR with the correctional workforce.

Keywords

community based participatory research; correctional supervisors; healthy workplace participatory program; survey design; workforce health assessment

1 | INTRODUCTION

The life expectancy of correctional officers is well below the national average (58 years vs. 75 years, respectively).[1] Corrections work is characterized by heavy psychological demands (e.g., interpersonal conflict among inmates or staff, high stress, exposure to danger and trauma) and heavy physical demands (e.g., emergency responses, sedentary work).[2–7] Employees are shift workers who often have extended and irregular work days (e.g., due to short-notice schedule changes or mandatory overtime) which interferes with involvement in family life and opportunities for recovery from work through sleep and leisure.[2–7] Corrections workers have high rates of mental health problems (anxiety, depression, suicide, alcohol/drug abuse)[7–10] and various physiological disorders (e.g., gastrointestinal, musculoskeletal, and cardiovascular problems).[11,12] They also experience high levels of burnout and work-family conflict.[13–15] In spite of low life expectancy and poor health, correctional workers have been over-looked in health research, and few evidence-based programs exist for improving correctional worker health.[16,17]

Existing research on health and related interventions from the corrections sector mainly center on front-line correctional officers (COs).[2,6,18,19] Our study focuses on correctional supervisors, who are the middle managers working in prisons and jails.[18] Correctional supervisors (i.e., lieutenants, captains, and counselor supervisors) are exposed to different stressors than COs resulting from their higher level of security and administrative responsibility within correctional facilities. They play a critical role in the chain of command between front-line COs and upper management (i.e., deputy wardens, wardens)[20] and are uniquely positioned to influence workforce health. However, unlike COs, correctional supervisors receive less organizational support, which may pose greater risks to their health,[18,21] and their inclusion in intervention research is limited.

1.1 | A union-initiated community-based participatory research project

Previous research from the Center for the Promotion of Health in the New England Workplace's (CPH-NEW) Health Improvement Through Employee Control (HITEC) project demonstrated that conventional top-down, administratively-driven workplace health interventions in corrections, which did not permit the participation of front-line workers, were ineffective in improving worker health.[2] Rather, bottom-up participatory intervention approaches with grass roots involvement from workers were more promising, yielding better

health outcomes and implementation outcomes, including higher participation rates and greater acceptability.[6]

Building on the success of the larger HITEC project, we used a community-based participatory research (CBPR) methodology with correctional supervisor union leaders, who initiated this study idea with the HITEC team. CBPR has gained increasing attention in public health research for its utility in addressing health disparities that result from social inequality.[22] Within the CBPR framework, *community* is a unit of identity that may not have defined geography, but its members are connected to each other through shared norms and values, common language and customs, similar goals and needs, and a collective interest in the community's well-being.[22] With CBPR, community members play an active role in every phase of the research process as equitable collaborators with scientific investigators and they put research findings into action to immediately improve community health and well-being.

CBPR has well-documented benefits for communities, including capacity building among its members, educating citizen scientists about forces that shape their lives, training them in research skills that can be used for problem-solving, and empowering them with experiences that demonstrate their agency and capacity for achieving positive social change.[23] Some identified challenges of CBPR have included issues of informed consent, discrimination based on socio-demographic characteristics, misuse of power and privilege, and the use of research for social action. However, there is a lack of research on best practices for addressing these problems and other conflicts that may jeopardize CBPR partnerships.[24]

1.2 | High-level participation in assessing priority health concerns

Another challenge of CBPR is that community members rarely participate in or have influence over the customization of surveys to assess and determine the community's own health status and needs, which is the basis of interventions subsequently developed.[25] Without early input from community members, research may miss critical aspects of the social, cultural, and environmental contexts that determine health. When preliminary research fails to detect root causes of illness and injury, resulting interventions are less likely to be of the most beneficial type, those based on primary prevention (i.e., elimination of risk exposure).

Rather than being equitable and active participants in the development and administration of data collection methods as specified by CBPR principles, community members are more frequently involved in the CBPR process at the point of intervention development, after the health assessment has been conducted and priority topics for community intervention have been decided by academic researchers or public health officials. A review of occupational and environmental health CBPR studies found that worker communities were only involved in assessing and determining research priorities in a quarter of studies.[26]

The lack of community involvement in health assessment has been attributed to a lack of researcher capacity regarding how to fully involve community members in the development and implementation of surveys for CBPR research.[25] This is a knowledge gap in the existing literature that is beginning to be filled. In a helpful case study, Schulz et al.[25]

provided an example of how to develop and conduct a health assessment survey using a CBPR approach. They recommended a participatory survey design process that includes community involvement in conducting focus groups, selecting survey measures, pilot-testing and refining surveys, administering surveys, and interpreting and disseminating findings.[25]

The *Healthy Workplace Participatory Program (HWPP)*[27,28] toolkit offers useful resources for carrying out the process recommended by Schultz and colleagues within occupational settings. The HWPP, created by CPH-NEW investigators, provides field-tested, freely-available, online participatory tools that advance *Total Worker Health®*, by integrating health protection and health promotion efforts in the workplace, pursuing both organizational-level and individual-level interventions that address root causes of occupational injury and illness.[29] Several HWPP tools are instrumental in guiding the participatory assessment of a workforce's health needs, while other tools facilitate the participatory development of interventions to address those needs.[30–32]

The HWPP is aligned with principles and practices of participatory ergonomics in which, similar to CBPR, members of a workplace community are considered subject matter experts of their jobs and the environments where they work, including the multiple underlying contributors of poor health. As such, they are invited to participate in the process of improving the occupational health and safety of their workplace as members of a "Design Team."[33,34] The Design Team is a fundamental HWPP concept in which workers are invited to collaborate in decision-making about how to assess workforce health and to participate as intervention designers.[35]

1.3 | The current study

This study documents the initial phase of a collaborative project carried out by a correctional supervisors' union and CPH-NEW academic researchers who agreed to work together equitably to undertake a CBPR study of correctional supervisors using HWPP tools in which: (Phase 1) interventions would be informed by a comprehensive preliminary workforce health assessment using participatory survey design methods, and (Phase 2) interventions would be designed and delivered with the active involvement of the correctional supervisors' union members. An additional study requirement was that interventions would be designed to reach the full correctional supervisors' workforce distributed across 19 facilities in the state.

This paper corresponds with the first phase of the project, and describes the process and products from the application of CBPR methods to design a survey as recommended by Schulz et al.[25] using HWPP tools. Our intent in using participatory survey design was to identify health concerns that would be inaccessible using traditional methods. We present methodology and results from a focus group that provided new insights about the understudied workforce of correctional supervisors and we show how findings were used to inform the systematic design of a survey to assess workforce health priorities. We then reflect on the challenges faced and lessons learned using this CBPR method. To guide the study, the Design Team posed two research questions:

Research Question 1: What do correctional supervisors perceive to be their priority health concerns, and what are the individual and organizational contributors to these concerns?

Research Question 2: What specific new measures are needed to customize a generic workforce health survey for contextual relevance in assessing the contributors to health and health status of correctional supervisors?

2 | METHODS

This qualitative study[36,37] followed the methods of Schulz et al.[25] with a Design Team of correctional supervisor union representatives working in a Northeastern state. The Design Team consisted of nine core members. Seven Design Team members were elected union leaders (e.g., captains, lieutenants) with at least 15 years of job tenure, and two were academic university researchers. The group facilitator was a CPH-NEW researcher (AD) and the note-taker was a graduate assistant (SN).

As recommended by the HWPP, six to eight Design Team members were selected by union leaders based on their commitment to improving worker health, safety, and well-being, and their willingness to collaborate with others, learn new skills, and function as opinion leaders within the larger population of supervisors. As a group, they also were selected for the right mix to represent the demographics of workers (i.e., sex, race/ethnicity, age, seniority) and the full array of tasks and environments within their job classification. Finally, they were selected for their ability to attend Design Team meetings regularly (1–2 times per month). It should be noted that the Design Team members served as the focus group participants. Participating in the focus group was their first activity together, before engaging in formal HWPP Design Team activities.

Key HWPP tools used in this study include the *Focus Group Guide for Workplace Safety, Health and Well-being*[38] and the *All Employee Survey*.[39] The process of developing and administering the survey occurred over seven months, in which the Design Team held 10 biweekly 2-h meetings. Table 1 provides an overview of the Design Team meeting schedule. Study protocols were approved by the University's Institutional Review Board.

2.1 | Participatory survey design process

Schulz et al.[25] outlined specific steps for participatory survey design. First, focus groups are conducted with a team of community members to generate themes to be addressed in a health-related survey of the wider community (Step 1). After reviewing focus group results, the team discusses existing research on relevant themes and topics that emerged from focus groups and reviews available survey measures for assessing those themes/topics, creating a preliminary survey (Step 2). When no existing measures are appropriate, the team may adapt existing measures or develop new ones.[25] After drafting a preliminary survey, the team pilot-tests it among community members who provide feedback on the content (Step 3). After revising the survey (Step 4), the team assists in administering the survey to participants (Step 5). Finally, the team assists in interpreting, disseminating, and applying survey findings (Step 6). In this study, we utilized the first five steps of the

participatory survey design approach, supplementing the process with HWPP tools. Step 6 will be addressed in a follow-up paper.

2.2 | HWPP tools

The *Focus Group Guide for Workplace Safety, Health and Well-being*[38] is a script that guides a facilitator-led conversation with workers to gather qualitative perceptions of their health-related needs, the impact of their job and work environment on health, and the ideal conditions needed for a healthy workplace. Data from the focus group was used to answer Research Question 1. Due to the rapid timeline that the union set for creating and administering the survey, we were only able to conduct one focus group. However, the group discussion was lengthy and detailed, requiring two sessions, with a different subset of Design Team members available to participate in each session.

We used the focus group guide to satisfy Schulz et al.'s[25] recommendation of using themes and topics from focus groups to inform the creation of a comprehensive health assessment. Qualitative methods are valuable for developing survey instruments in CBPR research because community knowledge can reveal previously unknown health risks, and ensure that resulting intervention are culturally and contextually relevant.[26] As a CBPR study in which participants provided input into study procedures, the Design Team opted not to allow the focus groups to be audio-recorded and transcribed. This is aligned with the especially cautious approach that corrections employees and union leaders tend to take regarding matters concerning worker privacy. To record the content of the focus group sessions, two Design Team members took detailed notes, recording the main points of what was discussed throughout each session.

The *All Employee Survey*[39] is a generic workforce health assessment survey that provides a quantitative assessment of workers' self-reported health status and health behaviors, their attitudes related to health, safety, and well-being, and their physical and psychosocial work environment. It is a streamlined instrument containing 37 domains (including demographics) and is widely used in CPH-NEW workplace health intervention studies. It is not typically used as a stand-alone survey but serves as the core of a survey to which supplemental measures are added to customize surveys to a specific workforce population and organizational environment.[39] The list of supplemental measures that the Design Team chose to add to the generic *All Employee Survey* provided us an answer to Research Question 2.

3 | RESULTS

3.1 | Step 1: Focus group

After an initial meeting to facilitate introductions, the *Focus Group Guide*[38] was utilized in Meetings 2 and 3 (see Table 1, Step 1). Due to time constraints, members of the Design Team were unable to participate in coding qualitative focus group data, and data were content-analyzed independently by two members of the study team (AD, SN). The researchers identified recurrent themes regarding the health challenges faced by correctional supervisors including root causes, and how these challenges were being addressed in the

workplace. Differences in interpretation were presented to focus group participants and reconciled by discussing content until consensus about meaning was reached. Answering Research Question 1, twelve major themes emerged that were categorized as organizational- or individual-level exposures or intervention opportunities. This list of themes (see Table 2) provides evidence that the participatory approach allowed us to identify potential health and well-being problems that would not have been detected with conventional methods. These potential problems (i.e., themes) provided new knowledge and informed survey content.

Organization-level factors discussed in the focus groups included the desire by supervisors to institute an overall culture of physical and mental health at the Department of Correction (DOC) (e.g., one that promotes healthy behaviors or diminishes psychosocial stressors such as incivility). Supervisors also discussed how their well-being is affected by working in a masculine culture and having a job that demands a continuous display of strength, power, control, emotional suppression, and a degree of interpersonal detachment. For example, they discussed that despite prescriptions to show social dominance at work (i.e., masculine behavior), such behavior often exacerbated conflicts with inmates which made other correctional workers feel less safe. Interestingly, it was revealed that workers who used good communication skills and humane treatment of inmates (i.e., often considered more feminine behavior) were well respected for successfully de-escalating conflicts and creating a sense of safety for others.

Related to this, supervisors explained that their emotional lives and family relationships at home were challenged by having to navigate the behavioral requirements of living in two different worlds (i.e., inside and outside of prison) and having to be a different person (i.e., have a different persona) in each world. This was described as dissatisfying for two reasons. First, supervisors felt that no one (at work or home) knew their “whole self” or their “genuine self.” Although they expressed a desire to improve family relationships and receive more family support, supervisors felt reluctant to share work experiences with family members so as not to burden them with grim realities that they may not be able to relate to, understand, or cope with. Second, family conflicts arose when the difficulty of managing a work and home persona resulted in the tendency for supervisors to use dominating “work” behaviors at home, have a restricted range of emotions (mainly anger) when interacting with family, and have difficulty accessing vulnerable emotions (e.g., sadness, fear) in their personal lives, even when appropriate. They identified the desire to have resources that help them and their families bridge the gap between work and home such as the family support programs and resources available to the United States military. (A significant number [~40%] of supervisors have military experience.)

Supervisors indicated that exposure to work-related trauma (e.g., due to the number of deaths, violent assaults, injuries, and suicides experienced or witnessed) and PTSD symptoms (e.g., hypervigilance) were common concerns, as was difficulty managing work-related stress which often spilled over into home life. Further, supervisors identified the need to build occupational self-esteem to counter negative perceptions of corrections work (e.g., observed in unfavorable public perceptions and unflattering media portrayals) by internally and externally promoting the positive aspects of corrections work (i.e., the meaningfulness

of protecting their peers and the public, the intrinsic reward of rehabilitating inmates and assisting inmates' families).

Individual-level factors also emerged as focus group themes, including supervisors' lack of physical and mental health-related literacy (i.e., basic health knowledge needed to make decisions and access care) and self-efficacy (i.e., belief in one's own ability to practice healthy behaviors). Supervisors also identified the need to improve self-care behaviors (e.g., sleep, exercise, healthy diet, and seeking professional care for physical and mental health) and to decrease risky behaviors (e.g., alcohol and caffeine consumption, smoking, chewing tobacco, and gambling). The need to improve sleep quantity and quality was a theme, as was decreasing high obesity rates. Supervisors identified obesity as a concern because of its health risks, but also raised it as an opportunity to improve occupational and personal self-esteem due to a widely-shared viewpoint within the workforce that its members should have a healthier and stronger physical appearance (i.e., a lean physique like state police troopers) that shows discipline and elicits respect from others.

Supervisors brought up the need to discredit the fatalistic belief among staff that health must be sacrificed to maximize current and retirement income. They noted that the healthiest supervisors were those who adopted the rare attitude of making their own longevity, health, and quality of life (i.e., feeling well and happy) a daily personal priority, rather than delaying health until retirement by maximizing earnings today (e.g., working as many overtime hours as possible). These risky cognitions and behaviors are scaffolded a "twenty years and out" retirement policy that enables many workers to retire in their 40s, and in which a worker's retirement payout (based on the highest 3 years of earnings) is maximized by accruing extended overtime hours late in their career. Risky behavior related to excessive hours is also buttressed by economic pressures (from self and family) to earn a higher income and often to maintain a high standard of living that was attained by, and is only sustainable by, earning extra overtime income. Further, supervisors noted that no matter how challenging corrections work is, turnover intentions are low. This is attributable to the incentive of receiving fully-paid-for comprehensive health insurance after working 20 years at DOC which enables workers to retire free from worry about needing health insurance or having to find alternative post-retirement employment that offers health insurance.

3.2 | Step 2: Selecting, adapting, and creating survey measures

All 12 focus group themes were incorporated into the design of a customized survey, and we utilized a process that generally followed the recommendations of Schulz and colleagues.[25] Over 2.5 months, in Meetings 4 through 8 (See Table 1, Step 2), the Design Team created a tailored survey to assess correctional supervisors' health behaviors and attitudes, physical and psychosocial environment/exposures, and health and work outcomes. This was done using the *All Employee Survey*[39] as the core of the survey to which supplemental measures were added to customize it to the particular experiences of correctional supervisors. Supplemental survey measures were chosen based on the 12 themes that emerged in the focus group to ensure themes were represented in the survey by including relevant measures. As recommended by Schulz et al.[25] the Design Team selected validated measures used in

previous research when available and appropriate, but adapted or developed new measures when appropriate measures were not available.

The Design Team retained the majority (95%) of *All Employee Survey* measures (Table 3) for the final survey, but some were dropped, adapted, or substituted with alternative measures. The main reasons for dropping or changing *All Employee Survey* items were that the Design Team: wanted more detail than conventional measures provided (regarding cigarette smoking, readiness for change, organizational support for health, safety and well-being), wanted less detail about the construct (supervisor support for work-family balance), already understood the situation related to the construct (job content, health opportunities at work), thought the measure would result in misinterpretation (intention to leave, personal safety, workplace safety, procedural justice), or thought that social desirability would cause responses to be biased (safety climate, mental health symptoms), go unanswered, or create defensiveness.

Twenty-six new supplemental measures (83 items) were added to the survey (see Table 4). Of the twelve focus group themes identified, the Design Team determined that the *All Employee Survey* only addressed three of them (Themes 1, 9 and 10, pertaining to health culture, sleep, and obesity). The remaining nine themes were addressed by adding measures pertaining to specific health/risk behaviors or attitudes (i.e., smoking cigars/pipes, chewing tobacco, gambling, consuming alcohol or caffeine, suppressing emotions, interpersonal dominance, accessing health care, fatalistic attitudes), physical and psychosocial work exposures (i.e., supervisory staff communication, masculine culture, trauma exposure, and effects, meaningfulness of work), work outcomes (i.e., behavior-based work-family conflict), work information (i.e., assigned facility, overtime hours), and attitudes related to the interface of health, retirement, and income (i.e., delaying health until retirement, compromising health for overtime income). This list of measures (Table 4) provided an answer to Research Question 2. The Design Team also added two items to gather information for planning and implementing future interventions (i.e., frequently-used social media platforms, locations/facilities where supervisors work).

3.3 | Steps 3, 4, and 5: Survey finalization and administration

A preliminary version of the survey was pilot-tested (Table 1, Step 3) with seven correctional supervisors (not Design Team members) who volunteered to participate after a union meeting. After taking the survey, they gave feedback pertaining to the clarity and appropriateness of survey item wording as well as their thought processes and understanding of items as they read them and provided answers. They made suggestions for improving the flow from measure to measure and gave input on the survey's completeness in covering important and relevant content areas. Pilot-testing allowed the Design Team to estimate survey completion time (they wanted it <30 min).

Meetings 9 and 10 (Table 1, Step 4) were used to make survey revisions based on feedback received. The final version contained 170 items and had a mean completion time of 25 min in a web-based format. Finally, the Design Team administered the survey (Table 1, Step 5) by having the vice president of the correctional supervisors' union send its members (via listserv) an email explaining the survey purpose (i.e., conducting a health needs assessment

for future intervention planning) and inviting recipients to take the online survey by clicking a web link.

4 | DISCUSSION

Using CBPR methodology with HWPP tools, we utilized a participatory approach to design a survey that assessed correctional supervisor health and well-being for the purposes of informing future interventions for that workforce. The HWPP provided important tools, including the *Focus Group Guide*[38] and *All Employee Survey*,[39] which were quickly adapted and implemented over ten meetings in seven months, generally following CBPR survey design methodology by Schulz et al.[25] Importantly, we found that CBPR methods and HWPP tools allowed us to identify potential health problems that would not have been revealed with traditional research methods.

4.1 | Focus group findings in relation to existing research

The participatory method proved valuable in answering our first research question, allowing us to identify themes relevant to correctional supervisor health and well-being priorities, including individual and organizational factors that contribute to these.[11,18] Most themes provided novel information that contextualized existing knowledge or revealed entirely new information. Though past research has identified prevalent health conditions and comorbidities among corrections workers,[11,16] no study has assessed the impediments to a culture of health in a correctional department using a participatory format. A related theme was the influence of working in a masculine organizational culture on health and family life. This finding is novel in that most existing research on corrections culture examines the masculine prison culture from the perspective of the incarcerated population, rather than of workers.[73,74] Other studies of masculine culture focus on non-corrections occupational groups and examine work outcomes (recruitment, performance, retention) rather than health-related outcomes.[75–77]

Existing research suggests that having both an organizational culture of health and of masculinity are at odds, as traditional constructions of manhood require men to explicitly disregard their health and embrace risk.[78] Men's gender expression (via conventionally masculine health-related beliefs and behaviors) is increasingly noted as a social determinant of their health, as research shows that men of all ages are more likely than women to engage in a spectrum of behaviors that increase risk of injury, disease, and death.[78,79] These risky behaviors, some of which were noted by the Design Team and added to their survey, include poor diet (e.g., large portion sizes, high red meat/low plant consumption), tobacco and alcohol use, risky sexual and driving behaviors, use of violence and aggression, high-risk leisure pursuits (e.g., extreme sports such as rope-free climbing or white-water kayaking), lack of safety practices (e.g., seatbelt use), and unwillingness to consult medical and mental health providers.[79,80]

Taking a positive deviance perspective,[81] focus group discussion intermittently concentrated on the subset of male workers in corrections who were known to exhibit healthy attitudes and behaviors, as exemplars of how it is possible as a correctional worker to achieve a healthier lifestyle (by thinking and acting in ways that are outside social norms while still

attaining socially desirable outcomes). Research shows that studying men with alternative forms of masculine expression (e.g., action-orientation, autonomy/rationality, appearance concerns) is of value in identifying and contextualizing health interventions so that they appeal to the broader population of men.[82]

The Design Team identified other salient factors that are drivers of health and risk behaviors among supervisors (i.e., eight of the 12 focus group themes referenced antecedents of health/risk behavior), particularly by discussing the attributes and qualities of the healthiest members of the corrections workforce, as noted above. These antecedents included health-related: literacy (i.e., increasing knowledge and self-awareness), self-efficacy (e.g., countering fatalistic beliefs), self-worth (i.e., focusing on the positive value of the job), attitudes (e.g., elevating health as a priority over earnings), and motivation (i.e., enhancing body image by attaining a muscular/competitive physique). These themes contribute to and further expand what is known from gender studies. For example, identifying body-consciousness and self-worth as pertinent to men's health is novel because it challenges research that treats these topics as mainly relevant to women's health.[82] Moreover, the prioritization of earnings over health is associated with traditional masculine expectations regarding the breadwinner role (i.e., primary family income source), an expectation that persists despite changed social norms that show a record number of women in the United States now share the breadwinner role with their partners.[83]

Regarding psychosocial well-being, focus group discussions identified behaviors such as emotional suppression and interpersonal dominance at work as poorly affecting mental health and family relationships. Qualitative research offers acknowledgment that correctional employees are burdened with having to navigate between prison life and the outside world,[84] but the challenge of having different work and family personas and the difficulty of "switching off" work behaviors at home has been insufficiently examined. The focus group discussed how correctional workers are expected to display an unfeeling demeanor and dominance in interpersonal interactions at work, behaviors that are contrary to family expectations of emotional openness and care. Though some studies have examined general work-family conflict among corrections staff,[12] few have investigated the type of behavior-based work-family conflict[85,86] that occurs when behaviors required by the work role are incongruent with behaviors needed to fulfill the family role.

Other focus group themes highlighted the importance of mental health. High work stress in the correctional workforce is well documented,[87] but relatively few studies address exposure to specific occupational stressors, such as direct and indirect trauma at work, or symptoms of PTSD.[88,89] In fact, due to the unavailability of an adequate trauma measure in the published literature, the Design Team resorted to creating their own. Supervisors in the focus group identified the desire for family members to be more supportive of their physical and psychological well-being and to gain a greater understanding of their work demands and exposures. Social support at work has been identified as a way for correctional workers to cope with work stress and improve well-being,[90,91] but limited research attention has been paid to the theme of family support as a way of ameliorating stress and enhancing health. A final theme, addressed in few other studies, characterizes correctional work as a stigmatized profession associated with low occupational prestige which may adversely affect

well-being.[92–94] We were unable to identify any research that focuses on poor self-esteem as a psychological challenge faced by correctional workers, or that examines the improvement of worker mental health by publicizing the positive aspects of corrections work.

4.2 | Survey design decisions

In addition to contributing new research insights into corrections work, focus group findings informed survey design by identifying a range of key topics to include in the final survey. This provided an answer to our second research question regarding the specific new measures that the Design Team thought were needed to customize the survey to assess the contributors to health and health status of correctional supervisors. It is noteworthy that 21 of the 26 supplemental survey measures were health-related antecedents, providing evidence for the utility of this approach in identifying root causes. Moreover, the majority of focus group themes (9 out of 12) were not addressed with the generic *All Employee Survey*, demonstrating how the participation of front-line workers is vital to designing comprehensive and contextually-grounded organizational surveys.[95]

In deciding what new survey measures to include, the Design Team attempted to strike a balance between the need to conduct a thorough assessment and the desire to make the survey short (under 30 min). Past experience with the correctional population indicates that long surveys with no incentives have very poor response rates, which is in keeping with organizational research.[96,97] Decisions about whether to keep, adapt or drop *All Employee Survey* measures were based on whether the Design Team felt they provided the desired level of detail to create a survey that was both comprehensive and customized to the population. Decisions were also informed by prior experience in the larger HITEC project that showed some measures do not adequately capture specifics of this population and have muted responses, emphasizing the utility of intensive focus group discussion to dig for deeper meaning.

One choice the Design Team made was to substitute a short *All Employee Survey* depression measure for a longer measure of mental health symptoms (the Brief Symptom Inventory[57]) which enabled them to gather detail about the range of psychological symptoms (depression, anxiety, hostility) that supervisors experience. However, the Design Team had a strong concern about social desirability bias in responses due to mental health stigma, which is common among survey developers regarding similar sensitive queries.[98,99] Interestingly, this prompted them to use two versions of the Brief Symptom Inventory, an original version that asked supervisors to self-report their own experience of nine symptoms over the past week, and an adapted version that asked supervisors to report their perceptions of other supervisors' experiences of the symptoms over the past week. The Design Team took this creative approach (assessing coworkers as the referents) to assessing the prevalence of mental health symptoms so that they would be able to compare differences in response patterns and determine whether one version would be more useful (i.e., have less social desirability bias) in follow-up surveys. The Design Team's modification of the mental health measure demonstrated particular utility as results revealed that supervisors perceived coworkers as having more severe symptomology than themselves, as expected. The Design Team perceived the approach as a favorable, insightful way to reveal the psychological

health status of a workgroup that is reticent to acknowledge personal difficulties, even in anonymous surveys.

Some decisions about dropping measures were made based on the Design Team feeling that the measure would result in misleading conclusions about the workforce, an important consideration in survey design.[100] For example, they were concerned that low safety ratings might be misattributed to worker carelessness rather than the dangerousness of the corrections environment, low procedural justice might be incorrectly attributed to unfairness rather than the nature of work in a hierarchical, paramilitary organization, and low turnover intent might be wrongly attributed to contentment in one's job rather than to the exceptional wages, benefits, and retirement package (compared to other states) or to temporal proximity to retirement with full benefits (including health insurance).

The Design Team's decision to drop several of the *All Employee Survey* measures reduced survey length and minimized response burden, but also allowed room for an additional 26 measures (83 supplemental items), which provided an answer to our second research question. Many were previously published measures, but several were created by the Design Team, which is acceptable in CBPR when standardized measures are unavailable or inappropriate.[25,100] The Design Team used slightly reduced versions of some of the published measures by selecting items that were most relevant and/or had the highest factor loadings.[101] Most supplemental items (~20%) were related to focus group themes of risky behavior, work-related trauma, and tradeoffs between health and income. These included items to obtain further information about health/risk behaviors (i.e., a battery of risk behaviors including smoking cigars/pipes, chewing tobacco, gambling, alcohol/caffeine use, reluctance to access medical/mental health care), as well as antecedents of behaviors including health-related literacy, self-efficacy, norms, attitudes, and motivation.

A similar number of items (20%) was created by the Design Team to assess the exposure to and effect of trauma experienced at work (they were especially interested in the effect of suicide exposure). They also created survey measures to assess whether supervisors were aware of the adverse effect of excessive overtime hours on physical health and sleep, or if they recognized that a lack of nonwork free time can result in poorer well-being due to reduced participation in healthy activities and family life.[102,103] Other created measures assessed supervisor motivations behind voluntary overtime behavior and the extent to which supervisors delayed prioritizing their health until after they retire, a common DOC sentiment.[3] It must be noted that adding these additional domains to the survey increased its length, which contradicted the Design Team's early preference for a very brief survey. In this way, the participatory process appears to endorse the extended content, which is usually an area of debate between academic researchers and community participants.

4.3 | Challenges and lessons learned

Our experience of applying CBPR methods in this study posed challenges and taught lessons that generally echo those documented by CBPR experts who have written extensively about their experiences using the method.[24,25] However, several considerations are particularly salient to correctional workers and may offer helpful knowledge for the conduct of CBPR with similar occupational groups, such as those within the public safety sector.

4.3.1 | Building relationships among insiders and outsiders—Design Team members from DOC are accustomed to a hierarchical command-and-control organizational structure in which superiors issue orders that result in immediate action. As such, they found the pace of participatory processes such as weighing contingencies, building consensus, and shared decision making, to be too slow and time-intensive. Another time-consuming but essential aspect of CBPR is developing trust, which requires people who are insiders (i.e., from the DOC community) and outsiders (i.e., academic researchers) to build a relationship and arrive at a common identity that allows them to successfully function together as a team.[104,105] A particular benefit of developing trust in this study was the increased candor over time of DOC Design Team members, who were initially wary about sharing personal information with researchers. As noted in CBPR literature, relationship building necessitates sensitive discussions about what both parties want and expect from the partnership, issues of accountability, and power dynamics at play,[106] which the facilitator found challenging to lead, having had no prior experience with CBPR.

4.3.2 | Facilitator expertise—Design Team members from DOC were adept at identifying constructs of interest to tailor the survey to their workforce, and some expected other aspects of survey development to be easier. They needed to rely heavily on the expertise of the academic researchers, who conducted searches on psychosocial and health-related constructs (i.e., health climate, emotional suppression, trauma) and found published survey measures to assess those constructs. The Design Team benefitted from basic training by the facilitator on psycho-metrics (e.g., concepts like validity and reliability, best practices for selecting a reduced set of items from existing validated measures, how to create survey questions and response options), and this learning experience made the process faster and easier with three subsequent surveys that the Design Team developed.

4.3.3 | Aligning expectations—We learned several lessons about what determines success that may generalize to other occupational groups. It was important at the outset to explicitly acknowledge that all Design Team members would function as equal partners throughout the research process, each having valuable subject matter expertise to contribute.[104] Consistent with CBPR methods, we also started with an agreed-upon understanding of the specific community participating in the study (i.e., correctional supervisors' union members working across 19 DOC state facilities) and a clear objective of what the survey should accomplish (i.e., deepen knowledge about the workforce's health and inform interventions).[105] These parameters kept the team's work focused when it got sidetracked.

4.3.4 | The role of methods and tools—Having a systematic process and evidence-based tools (i.e., CBPR methods, HWPP toolkit) to guide the team toward its objectives, ensured the work was well-planned-out and forward-moving. The team achieved a high level of engagement by following HWPP[35] recommendations: recruiting six to eight members, having three to four members attend each meeting, holding meetings at least twice monthly, and requiring members to play an active role in designing the survey and communicating about it with other supervisors. Using the HWPP *All Employee Survey*[39] as the generic core of the survey was a helpful starting point; it provided important key measures and had a

structure that prompted the team to fully consider the organizational and individual factors, inside and outside of work, that impact health, safety, and well-being (i.e., a *Total Worker Health®* approach).

4.3.5 | Key design team characteristics—Certain Design Team characteristics were crucial for success. The team was flexible and adaptable as needs arose.[2] It was resilient and continued functioning when there were staffing changes (i.e., retirements, reassignments).[2] The team was open to learning new knowledge about research conduct, survey design, and the *Total Worker Health®* concept. The fact that the Design Team initiated the research project and was self-organized established a high level of participation and investment in the team's success from the outset. The team's make-up exclusively of supervisors with strong union support made it unlike most other Design Teams, which are made up of (nonsupervisory) front-line workers. HWPP studies have found that the presence of supervisors and union leaders on Design Teams imparts a sense of empowerment, increases access to resources and support, eases logistical challenges, and encourages team engagement.[2,107] We similarly found that the supervisors' autonomy and higher rank, access to resources and information, and greater experience and influence with DOC and union administration, expedited the team's work and eliminated obstacles that other teams face.

4.4 | Study strengths and limitations

The participatory survey design approach is a strength of this study. Gathering comprehensive input from supervisors across many sites can increase the internal validity and generalizability of results,[22] while ensuring that survey measures and findings provide a comprehensive depiction of the health needs of the population. Moreover, gaining consensus on measures to assess relevant aspects of supervisors' lived experiences maximizes the likelihood that interventions based on the health needs assessment will be perceived as relevant, acceptable, appropriate, credible, and compatible with organizational culture, which are all predictors of adoption, a mark of successful research-to-practice translation.[108,109] In addition, we had an existing history with DOC which meant that management was already familiar with participatory processes, aware of the limitations of top-down administratively-driven programs, and had knowledge of health-related findings from a previous survey of the full corrections workforce.

The study also has limitations. Due to the fact that adequate measures for assessing all constructs of interest did not exist, several survey measures were adapted for use from other published studies or were newly created. Therefore, the psychometric properties of some survey measures were not established and require further development and validation. Also, new measures and even adapted measures prevent us from being able to compare our own findings with those from other studies. Further, as noted above, CBPR studies are time-intensive and demand energy resources that can pose a challenge to Design Teams unfamiliar with the rigors of research.

5 | CONCLUSION

The Design Team followed CBPR methods for systematic survey design, which was enhanced by the use of HWPP evidence-based tools. Doing so, we achieved the goal of

developing a tailored, comprehensive workforce health assessment that emerged directly from the lived experiences of correctional supervisors. We hope that by offering a practical example of how a specific method and tools were used, this paper stimulates interest among occupational health researchers who want to try out or adopt participatory research approaches. Our findings show that by using the participatory method, it is possible to identify health concerns that are not accessible with conventional instruments. In this case, they mainly relate to workers with public safety professions, in masculine work cultures, and with wage and benefit structures that permit them to substantially increase their earnings and retirement income through extensive overtime work. Findings were especially useful in revealing contributors (i.e., root causes) to health problems, such as health-related exposures, attitudes, and behaviors, that are essential for designing interventions aimed at primary prevention. Moreover, using the CBPR method and HWPP tools revealed challenges and lessons, including how to build relationships between insiders and outsiders, facilitator expertise needed, alignment of expectations, the role of methods and tools, and helpful Design Team characteristics, which are useful considerations for investigators who want to carry out similar participatory research projects.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study (i.e., meeting notes from focus group sessions) are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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TABLE 1

Schedule and activities of design team meetings

Mtg #	Month	Schulz step	HWPP tool used	Meeting activity
1	August	-	-	Form Design Team & Review HWPP Process
2	August	Step 1	*Focus Group Guide for Workplace Safety, Health and Well-being*	Conduct Focus Group
3	September	Step 1	*Focus Group Guide for Workplace Safety, Health and Well-being*	Conduct Focus Group
4	September	Step 2	*All Employee Survey*	Review Focus Group Findings & Design Survey
5	October	Step 2	*All Employee Survey*	Design Survey
6	October	Step 2	*All Employee Survey*	Design Survey
7	November	Step 2	*All Employee Survey*	Design Survey
8	November	Step 2	*All Employee Survey*	Design Survey
…	December	Step 3	*All Employee Survey*	Pilot-test Survey
9	December	Step 4	*All Employee Survey*	Revise Survey
10	January	Step 4	*All Employee Survey*	Revise Survey
-	January	Step 5	-	Administer Survey
-	February	-	-	Close Survey

TABLE 2

Focus group themes

Key themes	Exposure/intervention level
1. Creating a healthier culture at DOC (both physical and mental health)	Organizational
2. Addressing the need to adhere to norms of a masculine culture (display strength/control, suppress emotions)	Organizational
3. Addressing the challenge of living in two different worlds (in and outside of prison) and managing two personas	Organizational
4. Reducing impact of work on family relationships and improving family support	Organizational
5. Reducing work stress and addressing work exposure to trauma and PTSD	Organizational
6. Promoting the positive value of the job (not only focusing on the negative) to improve self-worth and esteem by others	Organizational
7. Improving health literacy and self-efficacy (both physical and mental health)	Individual
8. Increasing self-care behaviors (both physical and mental health) and decreasing risky behaviors	Individual
9. Improving sleep (quantity and quality)	Individual
10. Reducing obesity and addressing the desire to have a strong, fit, healthy physique	Individual
11. Prioritizing health over money (i.e., work less overtime)	Individual
12. Prioritizing health today (i.e., not delaying until retirement)	Individual

TABLE 3

Core measures from all employee survey

Measure	What measure assesses and original source	Design team action with reason	# of AES items	# of DT items
Health-related behaviors or attitudes				
Nutrition	Compliance with recommended fruit/vegetable intake per Dietary Guidelines for Americans[39,40]	Retained	1	1
Physical activity	Compliance with recommended Physical Activity Guidelines for Americans[39,41]	Retained	1	1
Cigarette smoking	Cigarette smoking habits[39,42]	Substituted with detailed item from Personal Wellness Profile[43,44]	1	1
Readiness for change	Interest in adopting healthy lifestyle practices.[39,44]	Added new item to assess interest in reducing caffeine use.	7	8
Physical or psychosocial work exposures				
Personal safety	Worker perception of personal safety at work.[39]	Dropped due to potential for misinterpretation.	1	0
Supervisor support work-family balance	Worker perception that supervisor supports family and personal responsibilities.[39]	Dropped item because level of detail was not desired.	1	0
Justice	Worker perception of fairness in organizational decision-making.[39,45]	Dropped due to potential for misinterpretation.	2	0
Civility norms	Worker perception that rudeness is not tolerated[39,46]	Retained	2	2
Job content	Overall assessment of work exposures, including work demands, control, and social support[39,47]	8 items dropped due to having a good understanding of situation.	12	4
Job security	Worker perception of good job security[39,47]	Retained	1	1
Emotional job demands	Worker perception that their job is emotionally demanding.[39,48]	Retained	1	1
Organizational support for health, safety, well-being	Worker perception of organization support for personal health, safety, and well-being[39,49]	Split into two items to obtain more detail.	1	2
Health climate	Worker perception that work environment is supportive of healthy lifestyle practices[39,50]	Retained	3	3
Work health opportunities	Worker perception of employer-provided opportunities to maintain or improve health.[39,51]	Dropped due to having a good understanding of the situation.	4	0
Workplace safety	Worker perception of workplace level of safety.[39,51]	Dropped due to potential for misinterpretation.	1	0
Safety climate	Worker perception that work environment is supportive of safe work practices[39,52–55]	Dropped due to potential for social desirability bias.	5	0
Health outcomes				
General health	Self-reported health.[39]	Retained	1	1

Measure	What measure assesses and original source	Design team action with reason	# of AES items	# of DT items
Health risk factors	Diagnosis or treatment for diabetes, high blood pressure, high cholesterol, back problems, anxiety/depression.[39]	Retained	5	5
Body mass index	Weight and height.[39]	Retained	2	2
Depression	Depressive symptoms.[39,56]	Substituted with Brief Symptom Inventory (BSI)[57] to obtain detail about psychological symptoms.	2	18
Health interference with work	Difficulty accomplishing work tasks due to health problems.[39,58]	Retained	2	2
Musculoskeletal pain	Pain, aching, numbness, tingling in back, joints, upper/lower extremities. Indicates injury/loss of function.[39]	Retained	5	5
Sleep	Aspects of sleep, including sleep quality and quantity, sleep hours needed, and sleep disturbance.[39]	Retained	4	4
Work outcomes				
Stress	Stress at work and at home.[39]	Retained	2	2
Work-family conflict	Difficulty balancing demands of work and family[39,59]	Retained	4	4
Burnout	Strain from emotional exhaustion/disengagement.[39,60]	Retained	2	2
Job satisfaction	Satisfaction with one's jobs and organization[61,62]	Retained	2	2
Intention to leave	Desire to quit job/find job with different organization[39,61,62]	1 item dropped due to potential for misinterpretation.	2	1
Personal information				
Dependents	Responsibility to care for dependent children or adults.[39]	Retained	2	2
Demographics	Age, sex, race/ethnicity, education, marital status, family income.[39]	Retained	6	6
Work information				
Commuting time	Travel time to work that exceeds 60 min. round trip.[39,51]	Retained	1	1
Work history	Tenure, hours worked, shift, and supervisory role.[39]	Retained	4	4
Other				
Informed consent	Participants' understanding of the risks, rights and benefits of completing the survey.[39]	Retained	1	1
Other comments	Provides an open-ended opportunity to gather other comments about health and the workplace.[39]	Retained	1	1

Note: Total # AES items = 92; Total # DT survey items = 87.

Abbreviations: AES, all employee survey; DT, Design Team.

TABLE 4

Supplemental measures added to survey by design team

Measure	What measure assesses and original source	Design team action	# of DT survey items	Corresponding focus group theme
Health-related behaviors or attitudes				
Smoking cigars or pipe	Pipe and cigar smoking habits[a]	Created by DT	1	Theme 8
Chewing tobacco	Tobacco chewing habits[a]	Created by DT	1	Theme 8
Gambling	Gambling habits[a]	Created by DT	1	Theme 8
Consuming alcohol	Consumption of alcohol (from the Personal Wellness Profile [PWP])[43,63]	Selected by DT	1	Theme 8
Consuming caffeine	Consumption of caffeine[a]	Created by DT	1	Theme 8
Accessing health care	Behavior related to seeking and receiving health care[a]	Created by DT	5	Theme 8
Suppressing emotions	Behavior of controlling emotion by not expressing it (Emotion Regulation Questionnaire)[64]	Selected by DT	4	Theme 2
Interpersonal dominance and caring	Attitudinal/behavioral posture of caring and dominance (8 items Bem Sex Role Inventory Short Form)[65,66]	Selected by DT	8	Theme 2
Fatalistic thinking about health	Attitude that some health issues are within or outside of personal control (4 items from FATE Index)[67]	Selected by DT	4	Theme 7
Physical or psychosocial work exposures				
In-facility supervisor communication	Frequency of interaction among supervisors in facility (4 items from Team Climate Inventory)[68]	Selected by DT	4	Theme 6
Masculine organizational culture	Perception that organization identifies with masculine values/beliefs (6 items, Organizational Femininity Instrument)[69]	Selected by DT	6	Theme 2
Exposure to/effect of traumatic work events	9 items on frequency of exposure to work-related traumatic incidents and 9 items on worker perceptions of the effect[a]	Created by DT	18	Theme 5
Meaningful work	Perception that work role has value (3 items Psychological Empowerment measure)[70]	Selected by DT	3	Theme 6
Physical or psychosocial family exposures				
Family health climate	Worker perception that family environment is supportive of healthy lifestyle practices[a]	Created by DT	4	Theme 4
Work outcomes				
Behavior-based work-family conflict	Conflict when behavior required in one role is incompatible with behavioral expectations in another role (4 items from Multidimensional Measure of Work-Family Conflict)[71]	Selected by DT	4	Theme 3
Work information				

Measure	What measure assesses and original source	Design team action	# of DT survey items	Corresponding focus group theme
DOC facility/location[b]	Assigned DOC facility[a]	Created by DT	1	
Overtime hours	Usual number of overtime hours worked per week[a]	Created by DT	1	Theme 11
Attitudes related to health, income, retirement, overtime				
Retirement thoughts	Extent to which worker is motivated by thoughts about retirement[a]	Created by DT	1	Theme 12
Current and post-retirement health	Expected level of health after retirement versus today[a]	Created by DT	2	Theme 12
Current and post-retirement happiness	Expected level of happiness after retirement versus today[a]	Created by DT	2	Theme 12
Attitudes related to health, longevity, and retirement	Attitudes about delaying health until retirement, and prioritizing overtime and earnings over health[a]	Created by DT	6	Themes 11 & 12
Proximity to retirement	Anticipated age of retirement[a]	Created by DT	1	Theme 12
Retirement financial confidence	Worker's expectation that they can meet financial needs in retirement[72]	Selected by DT	1	Theme 11
Retirement financial situation	Worker's expectation of their standard of living after retirement[72]	Selected by DT	1	Theme 11
Other				
Use of social media[b]	Forms of social media used most frequently[a]	Created by DT	1	…
Advice to new recruits about the job	Advice for new recruits about staying a healthy/happy person in a corrections career[a]	Created by DT	1	…

Note: Total # supplemental items = 83.

Abbreviation: DT, Design Team.

[a]Indicates DT original item.

[b]Indicates DT included item to gather information for planning interventions.