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Integrating power into research, outreach, and practice to make the most of the next decade of the *Total Worker Health*® Program

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BACKGROUND

The evolution of *Total Worker Health*®

The National Institute for Occupational Safety and Health's (NIOSH) *Total Worker Health* (TWH) program's vision is "to "protect the safety and health of workers and advance their well-being by creating safer and healthier work."[1] In January 2024, NIOSH personnel Chosewood and colleagues published an editorial in this journal [2] in which they stated "**all work** should both be safe and **enhance the health and well-being** of workers" (p.6, emphasis added). They furthermore highlighted next steps for the TWH program in advancing toward that vision, stating that the program will emphasize "...**issues that have previously existed on the periphery** of occupational safety and health research, practice, and policy and yet play a significant role in worker well-being. These evolving issues include confronting concerns like the **ever-increasing wage gap; gender, racial, and ethnic inequalities; invasive monitoring and AI-related losses of workers' agency and autonomy; employment insecurity; and occupational segregation and oppression**, all of which may lead to adverse physical health outcomes as well as raise risks for workplace stress and mental health disorders." [2 p. 7, emphasis added].

The need for power awareness

To our minds, these seemingly "peripheral" concerns have a common origin in imbalances in the power that equip some with the means to achieve their desires over—and indeed, at expense of—the desires of others. We also contend that power imbalances are thus the reason that all work is not equally safe nor likely to promote health or well-being. Work in its current configuration both mirrors and enacts broader social patterns that create unsafe and unhealthy workplaces, and it is thus unlikely that hazards to safety and health can be effectively eradicated without attention

to the power disparities that support those patterns. Moreover, theory about health promotion posits that in order to enhance health and well-being, individuals must perceive their experience of the world as reasonable, something they can manage, and involving roles that are consequential [3]. Power imbalances inherent in contemporary work arrangements deny many workers control over the conditions under and in which they offer their labor, making it unlikely that they experience employment in a way that promotes their health. These imbalances will continue until power can be redistributed more equally to allow working people greater governance over the work experience. Following from this logic, we believe that increased and explicit attention to power imbalances is crucial to achieving NIOSH's vision of work as a source of health and well-being.

The perspective that power imbalances must be addressed in order to fully realize the potential health benefits of work might register as idealistic to many in the occupational and environmental health community. Perhaps this is true. But an alternative vision is often the first step towards catalyzing change [4]. For those interested in this ideal, we offer some guidance on how we might begin to incorporate perspectives on power into work on occupational health. We first briefly introduce several fundamental concepts that have informed and broadened our understanding of the forces that shape worker well-being. We then highlight some assumptions that an engagement with power allows us to challenge in service of realizing NIOSH's goal of decent work for all. We conclude by applying these ideas to a contemporary situation (silicosis among artificial stone workers) challenging worker health, highlighting how greater engagement with power-related concepts would facilitate the elimination of this problem.

Conceptual levers: Social causation of health, power, power relations, and power consolidation

The prevailing biomedical model assumes that causes of ill health are (1) limited to biological, chemical, and physical exposures; (2) related to specific bodily malfunctions; (3) understood through (natural) experimentation and statistical comparison; and (4) effectively mitigated through technological innovations within medicine and engineering [5]. This perspective underpins health and safety regulation as well as prevention and curative medical practice. As such, the biomedical model has an obvious role to play in protecting workers from specific threats and in limiting their impact. Yet, it is difficult to see how the biomedical model, alone, can advance worker well-being or confront work-related structural arrangements that result in health inequalities, because these things are beyond its purview. To supplement the biomedical model, we recommend the social model of health and illness. Social models have evolved from nineteenth century social movements to explain population patterns of health and ill-health that persist despite seismic advances in medicine and engineering. These models recognize that the more immediate causes (the "proximal" or "downstream" causes) of ill-health that constitute the primary focus of the biomedical perspective are heavily influenced by relations between and among people and the institutions and systems in which they are embedded (the "distal" or "upstream" causes). These institutions and systems, as well as the associated values and beliefs, shape peoples' experiences and what is possible for them, in and beyond work [5], [6], [7], [8], [9]. In social understandings of health, distal/upstream causes such as power relations and consolidation are not only included, they are necessary components of inquiry and preventive action.

Work is one context in which power and power relations shape organizations and experiences [10]. In terms of organizations, **power** can be defined as the asymmetric control over valued resources (e.g. money, decision-making control, influence) that can be distributed positively (reward) or negatively (punishment) [11], [12], [13], [14]. Power may be understood as a relative lack of dependence on others to access resources, the possession of resources, or both, that stems not from an individual person's attributes [10], but from one or more bases of power. French and Raven [15], [16] conceptualized these power bases that represent asymmetries: expert power (special knowledge), reward power (being able to provide rewards), information power (having the resource of information), legitimate power (position-based power), referent power (based an individual's status), and coercive power (power as a result of the ability to provide punishment). Occupational safety and health (OSH) professionals will likely recognize these bases of power in how a line supervisor or employer may draw from them to exercise their power over workers within an organization, and understanding these dynamics provides useful insight into how individual worksites can develop more health-supportive distributions of power. In many ways, the organizational level is also a microcosm of how power is attained and distributed at the societal level to shape work. Societal-level power, however, is perhaps more apparent in the concept of power relations.

Power relations refers to the relative power between segments of the population. Work is source of direct economic resources as well as other health-enhancing resources (e.g. medical care, safety). These resources are differentially distributed across the population, and prevailing power relations render resources more or less necessary, valuable, and useful to population subgroups [6]. Disempowered groups are less likely to be able to access work that provides adequate

economic and health-enhancing resources, which in turn increases negative health consequences as a result of the unaffordability of the necessary ingredients for good health (e.g. nutritious food, quality and timely medical care, convalescence, etc.). Further, discrimination resulting from systemic sexism, racism, and ableism (among others) hinders how far those resources go, effectively reducing the resources available. Finally, consistently disempowered social groups are less able to use resources in service of their health because the experiences of powerlessness sap their will to effectively apply such resources in the service of health promotion [6]. In other words, those who have more power relative to others determine who gets what, and how far it goes in improving health. Consider foreign-born Latino workers, among whom access to health-enhancing resources is limited by employment insecurity, low wages, increased risk of injury and illness in the workplace, and limited access to medical care owing to immigration status, language barriers and lack of medical insurance. This disparity reflects social power relations that establish employment conditions and terms that disfavor these workers relative to others.

Lack of resources and the vitality and effectiveness to use them diminishes both individual health and well-being as well as the capacity to act towards meaningful change. When resources are scarce, people have less energy, time, and knowledge to come together to **consolidate power** and pressure institutions to mount responses to problems that challenge their well-being [17]. American history demonstrates time and again that organized actions are necessary to consolidate power to address social inequity and harm, whether they occur in the workplace or community. We need look no further than the landmark legislation related to worker rights, health, and safety and the agencies created to further them, or to legislative and administrative gains in civil rights, all of which were pushed by the collective actions of everyday people.

Leveraging power-related concepts to challenge assumptions that hamper efforts to improve worker health

In our collective, varied experiences in understanding and advancing worker health, safety, and well-being, we have encountered some assumptions, many of which are implicitly present rather than consciously articulated, that strike us as hampering efforts to support workers. In what follows, we lay out several of these assumptions and tie them to ideas of power in order to demonstrate the utility of doing so for changemaking.

Assumption 1: That the optimal focus for changemaking is on workers (rather than on work and the forces that shape work).

In a workplace, individual workers have few bases of power and littletono ability to control resources. With most workers possessing little power, they are limited in their ability to make meaningful changes to their employment or working conditions or to effectively utilize resources that support their health and well-being.Yet, much OSH research and practice focuses on workers rather than work and the forces that shape work. This assumption can result in attribution of injury or illness to failure of the worker to comply with some work practice or policy, or to manage boundaries between work and broader life effectively.This can further represent a bias about which workers are deserving of decent work, demonstrating a power relation that disempowers workers. On a practical level, this assumption naturally results in an emphasis on training to encourage better health and safety behaviors. Yet the root causes of health and safety risks are more complex than the action of any specific individual, and so must be the solutions.

In this assumption, the lack of focus on the social structures that create the conditions of employment and work means both often stay the same [7]. As a result, the creation and application of health-related interventions focused on workers are less effective, in part because worker agency is often limited to a narrowly defined scope. Such interventions must also occur continuously as workers change through aging and other demographic shifts. By changing work, we are not depending on specific individuals to teach, adopt, or accept changes.

Assumption 2: Enhancing the well-being of workers can be achieved by ensuring that specific employers or organizations minimize/eliminate workplace hazards and promote worker well-being.

Within workplaces, employers have more power bases and resources than workers [18]. Regulatory schemes, such as the U.S. Occupational Safety and Health Act, reflect this power by requiring employers to provide a place of employment "free from recognized hazards…" (OSHA Act Section 5). Employers, however, are also able to consolidate power within their industries, with suppliers, and with others, which provides them with an outsized ability to determine conditions of work. Consider noise in the workplace. Employers exercise their power within the workplace when choosing whether to rely on workers wearing hearing protection or to purchase quieter equipment to prevent noise-induced hearing loss. They can also use their consolidated power to define hearing protection as the industry-normative practice and prevent regulation that requires use of quieter equipment instead. Such decisions are often driven by financial interests, and it will require a change in power relations to shift or overcome this financial calculus.

Without this change, workers and OSH professionals will not have the leverage to fully eliminate or control known hazards, let alone move into the territory of health and well-being *enhancement*. As we note above, our well-being depends in part on whether we experience of the world as reasonable, manageable, and meaningful [19], [20], [21]. Worker voice, or "the capacity of workers to speak up, articulate, and manifest collective agency that ultimately improves the terms and conditions of their employment and their livelihood," and "shaping the societies in which they live" [22, p. 4] facilitates this experience and increases the chance of achieving well-being.

Assumption 3: That treating work as a social cause of health and health inequalities means ignoring hazards in a specific workplace.

Since employment and working conditions result, either indirectly or directly, from measures determined by powerful actors in cultural, legal, political, and economic spheres, efforts to address hazards in a workplace must occur in parallel with efforts to address these social causes of health and health inequalities. At present, hazards exist and pose risks to workers because their persistence is either tacitly or actively permitted by larger societal forces. For example, there is a social tolerance for injury, illness and death among worker groups marginalized in our society (e.g., "someone needs to do this dangerous job, better them than me"). Or, to put it plainly, health is socially created [5] and thus must be socially addressed.

When the workplace is the sole focus in efforts to improve worker health, this can produce a reactive rather than precautionary approach to workplace hazard identification and management. Focusing on workplaces in tandem with attention to how societal-level power relations are made

manifest (e.g. regulatory policies), however, allows for the identification of root causes and the ability to prevent a hazard from ever occurring. Looking beyond specific jobs, workplaces or industries allows us to see the commonalities in hazards, and, therefore, where lies the power to change them. In the fields of epidemiology and public health, this sort of root causes analysis is described as moving upstream. The following parable makes clear why it is essential. “There I am standing by the shore of a swiftly flowing river and I hear the cry of a drowning man. So I jump into the river, put my arms around him, pull him to shore and apply artificial respiration. Just when he begins to breathe, there is another cry for help. So I jump into the river, reach him, pull him to shore, apply artificial respiration, and then just as he begins to breathe, another cry for help. So back in the river again, reaching, pulling, applying, breathing and then another yell. Again and again, without end, goes the sequence. You know, I am so busy jumping in, pulling them to shore, applying artificial respiration, that I have no time to see who the hell is upstream pushing them all in.” [23], [24]

Assumption 4: That occupational safety and health professionals with a specific technical focus are ill-suited to the tasks of promoting health and well-being and informing broad-based policies relevant to, but not targeting, workers in specific industries, occupations, or jobs.

The most apparent power base of OSH professionals is expert power, but, in truth, OSH professionals have many power bases in a workplace and in society both, and can use their individual power and consolidated power across the profession to engage with policies that support worker health and well-being. OSH professionals may feel most authoritative in the areas of work organization and scheduling, for instance, but this can extend with respect to paid

leave and minimum wage. The COVID-19 pandemic was a recent example where paid leave was a critical workplace health issue for which OSH professionals had obvious power to advocate.

Assumption 5: That any job is better than no job.

Workers want to work, but many lack the power to acquire decent work. Research has shown that job loss is damaging to health, but also that the gap in health between those with precarious employment and no employment is surprisingly small [25]. Many jobs undermine the health status of workers by exposing them to recognized hazards and providing inadequate pay, benefits, leave, and more that impede their ability to maintain or improve their health. When an illness or injury results in disability, a worker may further be forced to entirely exit the workforce and lose access to what resources they were formerly able to attain from paid employment.

Assumption 6: That employer well-being will necessarily translate into worker well-being.

Employers have power to allocate resources that can advance worker health and well-being, but cost-benefit arguments are integral to employer decision-making. It follows that the economic costs to the employer due to implementing controls or complying with a regulation are balanced against employer costs from workers' injuries, illnesses or lives lost. However, the costs to workers and their families are typically ignored, reflecting the unequal power relationship. Moreover, OSH professionals frequently argue that initiatives to improve worker health are "good business sense," yet many have stories of initiatives being denied despite economic benefit to the employer. In discourses surrounding workplace regulation, opposition often hinges on the notion that employer and worker well-being are intrinsically intertwined, such that

damage to employer well-being (e.g. financial loss) will result in damage to worker well-being (e.g. loss of jobs). However, is it reasonable to expect that employer disadvantage automatically translates into employee disadvantage? Under which contextual circumstances might this not be so?

A contemporary case: Silicosis among engineered stone workers to exemplify barriers related to unchallenged assumptions

An epidemic of silicosis has emerged among workers who fabricate engineered stone countertops [26], [27], [28], [29], [30]. A recent series of 52 cases in California described these workers as foreign-born (100%) Latino (98%) men (100%) who perform this work in small workshops (≤ 50 employees, 98%) [26]. These workers develop silicosis because they inhale high concentrations of respirable crystalline silica released during the cutting, grinding, and polishing of the stone, which can contain as much as 90% crystalline silica [29]. The overall thrust of research about silicosis focuses on modifiable risk factors, such as the impact of the product silica content and effectiveness of control strategies. Such information is vital to intervention, but the literature also points to power-related issues that have implications for what people will do with the findings.

These cases have been described as impacting a "vulnerable" population of foreign-born workers who lack adequate medical insurance [27], [28]. Such a framing implicitly turns the reader's attention to characteristics of workers (assumption 1), rather than the institutions and systems that make those characteristics relevant to their lack of protection and support and their vulnerability to silicosis [31]. These workers need and want to work, but their characteristics—

foreign-born, often non-English-speaking, and perhaps without permission for legal employment—segregate them to work in shops less likely to have respiratory protection and engineering controls, and further put them at increased risk of wage theft. Addressing this power relationship likely requires change in employment regulations for immigrant workers and attention to larger oppressive societal forces such as nativism and racism, because such forces segregate Latino men, particularly those who are foreign-born, into jobs that we allow to remain more dangerous than others (assumptions 3 and 5).

The existence of engineered stone reflects the power of manufacturers and consumers to create and demand a product that is low cost and meets consumer design tastes [26, p. 992], despite the product containing extremely high levels of a well-known respiratory hazard and carcinogen that requires cutting, grinding and polishing, tasks known for decades to pose risks to workers. Product re-design by manufacturers to eliminate or reduce crystalline silica from the product may lead to introduction of other, less recognized hazards that may not be recognized until workers become ill. This situation reflects the power of consumers and companies with an interest in savings or profit to define work, and requires us to challenge the influence of corporations and consumerism on product development, and consolidate power so as to increase consideration for worker health and well-being throughout the stages of product development (assumptions 2 and 6).

The movement by some manufacturers to lower the crystalline silica content of engineered stone in line with that in natural stones will reduce but not eliminate exposures and health risks. A focus on changing product composition implicitly suggests a job with silicosis and cancer risk, or

another unrecognized risk, is better for health than no job (assumption 5). Given that research has found that the communication of hazard and exposure control information, both from manufacturers to employers and employers to workers, has been disjointed and ineffective, workers are likely to be without informational power to counter the hazards posed by current and future engineered stone products.

Finally, the countertop fabrication industry has many small shops and non-standard employment and work arrangements. This situation hinders regulatory enforcement and medical surveillance, and obscures who is responsible for maintaining a workplace free of recognized hazards. Licensing of shops has been proposed to identify employers and ensure the use of effective exposure control strategies, which either could eliminate "bad actors" or move them further underground. Another step forward would be to explicitly delineate the role of degraded conditions that make risk invisible and diffuse responsibility for creating illness [24], and to include such factors in our research, surveillance, and advocacy such that responsibility is placed where it belongs (assumption 4).

Residential and commercial construction will continue to require countertops, even if engineered stone products with respirable crystalline silica are eliminated. A focus only on controlling the exposures experienced by a worker in a shop and providing them with medical screening and treatment for silicosis will certainly improve the health and well-being of that worker. Exploring why this work exists the way it does, however, will identify opportunities to redistribute power to improve the health, safety and well-being of workers across the industry, and even more broadly across work entirely.

Conclusion

A full embrace of models of social health causation and engaging ideas related to power will facilitate greater scrutiny of issues that impede progress on the TWH program's long-term vision of work that is supportive of safety, health, and well-being for all workers.

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