Work as an Inclusive Part of Population Health Inequities Research and Prevention

Despite its inclusion in models of social and ecological determinants of health, work has not been explored in most health inequity research in the United States. Leaving work out of public health inequities research creates a blind spot in our understanding of how inequities are created and impedes our progress toward health equity. We first describe why work is vital to our understanding of observed societal-level health inequities.

Next, we outline challenges to incorporating work in the study of health inequities, including (1) the complexity of work as a concept; (2) work's overlap with socioeconomic position, race, ethnicity, and gender; (3) the development of a parallel line of inquiry into occupational health inequities; and (4) the dearth of precise data with which to explore the relationships between work and health status.

Finally, we summarize opportunities for advancing health equity and monitoring progress that could be achieved if researchers and practitioners more robustly include work in their efforts to understand and address health inequities. (*Am J Public Health.* 2018;108:306–311. doi:10.2105/AJPH.2017.304214)

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See also Landsbergis et al., p. 296; Finkel, p. 312; Monforton, p. 314; and Wright, p. 315.

More than a decade ago, Lipscomb et al.[1] argued that excluding the analysis of work in health disparities research in the United States limits comprehensive understanding and our ability to intervene in persistent health inequities. A few researchers since have incorporated work into analyses of health inequities in general[2] and health inequities observed by socioeconomic status or position.[3] On the whole, though, and despite its inclusion in socio-ecological models and its centrality in the lives of most adults, work remains remarkably absent from examinations of health inequities in the United States.

Several factors may explain this absence. These include the complexity of work as a concept for study; how work is intertwined with other concepts such as race, ethnicity, educational attainment, immigration status, gender, and socioeconomic position; and the development of a separate, parallel line of inquiry into occupational health disparities and inequities in isolation from the population health inequities agenda. Leaving work out of a broader health inequities inquiry has important consequences for research and practice, namely fragmentation of thinking and resources, incomplete understanding of inequitable patterns, and less effective strategies to intervene in them.

We discuss these factors in detail, outlining concrete advances in understanding that we could make by including work along with other important factors in the study of the social production and patterning of disease and health. We argue that a careful consideration of work in public health research and practice can advance health equity.

To clarify our discussion, we briefly explain our use of terms. References for readers who wish to engage more deeply with these ideas may be found in the online supplemental information (available as a supplement to the online version of this article at http://www.ajph.org).

Employment refers to the legal relationship that buyers of labor have to sellers of labor. This relationship determines the obligations, responsibilities, and expectations of employers and employees in that relationship. *Occupation* is applied to socially defined groups of workers with the assumption of shared skills, knowledge, and tasks. We use it for organizational purposes in the job market and in research. *Working conditions* are circumstances under which people perform their jobs and can include how work is organized; location and hours worked; and the physical, chemical, biological, and social factors present. We call factors that are close to the job tasks (e.g., ergonomic demands) *job characteristics*. Throughout, we use the words *work* and *job* to generally refer to the package of employment relationship, occupation, working conditions, and job characteristics; to refer to a more specific idea, we use the more specific term. Likewise, *disparity*, *inequality*, and *inequity* are not synonyms. *Inequity* implies a state that results from a lack of fairness and is the most relevant to our discussion of pursing health equity. However, we use the terms *disparity* and *inequality* when they are in keeping with the referenced research.

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THE IMPORTANCE OF WORK

Most adults, and many adolescents and children, worldwide spend a great proportion of their time at work or seeking work. Work can influence health in multiple ways, for example, through its physical demands, forms of employment, compensation and benefits, exposure to hazards, and availability of psychosocial resources.[4] Work also influences things that place workers and their families into societal hierarchies and that are considered fundamental causes of health status: power, money, prestige, and social connectedness.[5] Work primarily determines a person's income, comprises much of social prestige, and provides social connectedness, all of which are related to power. Conditions of work and employment, and how work shapes other determinants of health, may further accumulate across population groups over time to affect health inequities.[1,6,7]

Some researchers have argued that because race, ethnicity, and gender are so intertwined with fundamental causes of health status, these characteristics might also be considered fundamental.[5] Because of similar intertwining of work with recognized fundamental causes, we believe that work can also be considered among them. At the very least, examining work is a concrete way to focus the study of fundamental causes, because it provides a concrete social location where these causes (i.e., structural relationships) materialize. Additionally, work can serve as a point of articulation for the relationships between people and structural and social institutions.[8] From a research perspective, if social and occupational class determine one's place in a social hierarchy, "work is the underlying measure of inequality in any definition of socio-economic health inequalities."[7(p11)] Yet we do not know the full influence of work on aspects of ill health or its total contribution to health and well-being[9] and observed patterns of health inequities. Most research on the social production of health and disease in the United States does not consider work. Failing to consider it in research creates a blind spot about the role of work that impedes our full understanding of how health inequities come to be.

WORK AS A COMPLEX CONCEPT

Fundamental, or very nearly so, work is a complex concept that is difficult to define as a study variable. This may partly explain its absence from research on health inequities. It may be relatively easy to identify whether a person is working for pay and to determine some aspects of the employment relationship (e.g., seasonal vs permanent work). But other classifications raise complications. For example, a person working part time may do so by choice, may have a second job, and may think of him- or herself as retired, working only for supplemental income. Additional aspects of the employment relationship—such as job security, worker influence on conditions, adequacy of wages and benefits, and the ability to exercise rights on the job—challenge simple conceptions of work.[10]

Work is also complex in its relationships to health. Work and health influence each other.[11,12] But work can have both health-damaging and health-enhancing effects at the same time on workers and populations.[1,13] Rural mining communities, which both benefit from and may be harmed by mining work in complex ways,[14] are illustrative. Physically demanding jobs with high likelihood of toxic substance exposure can also be a source of stable income, pleasure, mastery, fulfillment, and social connection, all of which are health enhancing. Leaving this type of job because of harsh working conditions may also reduce the worker's access to the health-supportive material and the social resources it provides, particularly in contexts that may not offer other opportunities. Furthermore, work and other domains of life have porous boundaries and can interact with each other, leading to poor health and quality of life.[15,16]

Despite the complex interrelationships among work, other domains of life, and health, when aspects of work are included in population health research—as employment status (i.e., working for pay or not), occupational categories (e.g., blue collar, service, management), or selected occupational exposures (e.g., shift work)—research infrequently discusses their role explicitly.[17] Population health research has not adequately addressed the dynamic and complex relationships between work and health to date.

OVERLAP WITH OTHER CONCEPTS

As a fundamental cause of health status, work overlaps with other important factors that influence health equity. First, work is interwoven with socioeconomic position because of its function of providing material and nonmaterial resources, power, and status.[1,18,19] Foundational studies of health inequalities (the term more commonly used in non-US countries) that assessed ill health and mortality by occupational category[20–22] used occupation to represent socioeconomic position. However, studies on socioeconomic position and health in the United States use education and income more commonly than occupation and have focused more on race, ethnicity, and gender.

Second, in the United States and many other places, the work that people do is highly segregated by race, gender, and age; is heavily influenced by their geographic location and educational attainment; and is entwined with income.[1,23–25] In addition to what type of work is available to whom in different parts of the country, policies that influence the relationships between work and health vary across states and localities. When rules governing things such as workers' compensation, wages and hours of work, and collection of work-related injury and illness data for surveillance exist at the federal level, states must at least meet that standard. However, beyond the minimum standard, practices differ; as a result, health states related to these realities likely also differ (see supplemental references [available as a supplement to the online version of this essay at http://www.ajph.org] for an example). Without explicit study of work in conjunction with those factors, the importance of work may be obscured because risks associated with certain jobs often coincide with workers' geographic, demographic, social, and economic disadvantages.[26] Researchers may then attribute their observations about health and well-being to characteristics more frequently studied that have more familiar definitions.

Some research has disentangled the influences of work and race in ways that might illuminate strategies to address inequity. For instance, by examining characteristics of participants' jobs in the context of socioeconomic position and race, researchers[27] demonstrated that being employed in less-complex work (complex work is health protective) explained a sizable proportion of the observed mortality disadvantage of African Americans compared with Whites. That is, characteristics of work were a tangible manifestation of racial disadvantage and part of the mechanisms that create racial health inequalities. The study thus identified additional strategies to alleviate injustices (e.g., ensuring complex jobs are available to all, reversing job simplification in jobs in which racial minorities are disproportionally present) that an analysis ignoring work characteristics would not provide.

PARALLEL CONCEPT DEVELOPMENT

Environmental and occupational health have in many ways been separated from the larger realm of public health research and practice[28] and have been fragmented through economic, social, and political processes (see supplemental resources [available as a supplement to the online version of this essay at http://www.ajph.org] for a detailed discussion on the difficulties of forming coalitions in this realm). Researchers interested in work as a social cause of health status in the United States have become a separate research community that explores health inequity only in the workplace. Although their interests and goals overlap with those of others who aim to understand health inequities, these researchers have created largely separate, parallel lines of inquiry under the terms *occupational health disparities* or *occupational health inequities*. In combination with the absence of work as a concept in broader public health inequity research, intellectual and practical enclaves have formed.

Although definitions of occupational health disparities vary,[29–31] all identify patterning of work-related injury and disease in what they variously term *vulnerable workers*, *underserved workers*, or *excluded workers*: racial and ethnic minorities, nonnative worker groups, and sometimes underrepresented gender groups. But there are challenges to this approach. Defining work-related health outcomes is not a simple task.[9] With a few exceptions that are clearly tied directly to work, (e.g., traumatic injury, lung diseases associated with coal mining and asbestos), many diseases are complex and multifactorial. Viewed in their complexity, any number of health states are likely related to work. Furthermore, without explicit discussion, it can be unclear which groups of workers are vulnerable, underserved, or excluded; under which circumstances; and how that vulnerability or exclusion materializes. Therefore, occupational health disparities research has been mostly limited to health outcomes undeniably in the boundaries of a certain job; this research has often simply described those outcomes along person-level social and demographic characteristics rather than including the complexity of the experience of work as part of the social production of health inequities.

In presenting these critiques, our intention is less to criticize specific research efforts and more to point out the larger problems created by the combination of the absence of work in broader health inequities research and a parallel development, such as occupational health disparities and inequities. Although dividing occupational health and safety from public health has been a long-term process, by responding with a parallel focus on health inequity, occupational researchers and practitioners have further separated work from the larger health equity conversation. At the same time, broader public health research and practice in the United States does not recognize work as a central contributor to health status and does not emphasize the connections between work and health. The disease-based focus of our health research infrastructure makes it difficult to explore distal, multifaceted, and complex causal components such as work. As a result of these circumstances, groups of researchers, practitioners, and advocates focused on social and economic patterning of health status and those focused on work are not unified. Blind spots about work in one group and narrow focus on work in another result in a limited and fragmented research perspective in both groups; neither group is able to fully benefit from the knowledge the other has.

THE ROLE OF DATA LIMITATIONS

Perhaps insufficient surveillance and survey data with which to explore, describe, and monitor the relationships among work, health, and well-being are both a cause and a consequence of the fragmented research and practice perspectives. Estimating the likely burden of a certain problem—how many people might be affected and to what degree?—is a necessary and fundamental step in public health research and practice. Surveillance and research feed each other iteratively, in that strong surveillance systems allow preliminary analyses that can encourage the development of strong research questions and hypotheses, and judicious research helps surveillance systems to be more informative.

Our current surveillance systems provide us with some ability to assess defined occupational health or safety outcomes along the lines of variables such as race, ethnicity, nativity, occupation, and industry; surveillance reports of occupational injury and illness are regularly delineated by these factors. As surveillance should, these efforts have highlighted patterns in occupational injury that have aided priority setting (e.g., the National Occupational Research Agenda has areas that focus on underserved workers that have facilitated important knowledge gain). Data available to the public come primarily from the Bureau of Labor Statistics's Injuries, Illnesses, and Fatalities Program. This source compiles traditional reportable occupational health outcomes—occupational injury, illness, and fatality—to characterize patterns, identify high-risk occupations, and develop hypotheses. Some self-reported measures of injury and illness are available in other longitudinal or repeated cross-sectional surveys.

Researchers can work to obtain traditional occupational safety and health data in the form of occupational histories gleaned from medical settings, workers' compensation data, job exposure matrices, death certificates, and the Occupational Information Network. They can also collect

new primary data in the form of circumscribed research studies. The National Institute for Occupational Safety and Health maintains additional, specific surveillance programs; but, with few exceptions, only reports, not data, are publicly available. Furthermore, although these are vital resources, they allow the monitoring of only traditional occupational exposures and very clearly work-caused injuries and illnesses. The assessment of the interrelationship of work with health and well-being requires a wider range of outcomes.

Data that may include some information on work do exist as part of broader public health surveillance efforts, such as the Behavioral Risk Factor Surveillance System, National Health Interview Survey, National Health and Nutrition Examination Survey, and Census Bureau–affiliated sources such as the American Community Survey. In theory, these data sources allow the exploration of additional health states. However, they often query aspects of work in very limited detail—for instance, collecting only industry or occupation variables without additional characteristics of work—limiting their usefulness in determining the relationships among specific features of work and health.

In general, the realms of occupational safety and health and broader public health are very separate. Connecting them is challenging; across data sources, when it is possible at all, cross-referencing and linking requires a high level of skill and familiarity with the sources. Even when occupational health and safety data and broader public health data are successfully connected, further limitations exist, such as undercounts of nonfatal injury and very limited data on illness.[32,33] Because availability and details of work-related variables are so varied, it is very difficult to explore the relationships between work and health broadly. Both occupational health research and broader health inequities research may be limited because researchers may not invest their finite time and resources in data sources that pose technical difficulties and offer inadequate information. Unfortunately, the paucity of data probably also limits the development of possible interventions.

INCLUDING WORK IN POPULATION HEALTH RESEARCH

Giving work a more integrated place in our research on health status determinants could strengthen our efforts to achieve health equity in several ways. First, we would gather data that answer critical questions. Because of limited resources, stronger, more detailed, and regular surveillance and research are vital to our ability to address health inequities, because fundamental causes are related to many diseases and their risk factors.[5,9] We could pursue this by supplementing existing surveillance systems; the National Health Interview Survey and the Pregnancy Risk Assessment Monitoring System have both successfully included questions about work in surveys. We could also work to improve our ability to link existing non-health data sources—for example, data from education and social service programs—with health data sources such as disease registries, workers' compensation data, and other insurance data. When it is possible, new systems might also address the gap. Stronger surveillance using the tools we have, and the research questions that develop as a result, would reinforce one another.

The General Social Survey, a repeated cross-sectional survey that has been running since the early 1970s, could be used to this end. The General Social Survey includes relatively detailed sociodemographic information and asks about industry and occupation using specific comparable codes. Some iterations include the National Institute for Occupational Safety and Health Quality of Work Life questionnaire. However, it gathers very limited data related to health. If it were expanded and repeated regularly, it could be a way to track aspects of work with significant impact on the health and well-being of the workforce. With continued use and development, it might become useful for monitoring and planning on the basis of trends.

An expansion of the National Longitudinal Surveys Program, which is housed in the Bureau of Labor Statistics' Employment Research Division, might also serve a need. All surveys the program uses include questions about employment and aspects of health, and some surveys ask about work injury and what the circumstances were surrounding the injury; focusing these questions on areas where we lack knowledge or those we wish to monitor would supplement available data. In European countries, examples of repeated cross-sectional and longitudinal surveys related to work, employment, and health exist that might inspire data collection by US researchers. The European Working Conditions Survey is a periodic, ongoing, cross-sectional survey that allows comparison across European countries. In combination with surveys similar to the European Quality of Life Survey, data from such a survey could provide important information to enhance our ability to address work-related and non–work-related overlaps that influence health.

Finally, researchers have developed measurement tools that allow the assessment of worker- and workplace-level disadvantage through self-report.[34] Using such tools in regular, population-level surveys could effectively highlight combinations of factors that create health disadvantage. Better understanding individuals' various social roles, including occupational ones, would also inform public health surveillance.

If more precise data about work were incorporated into existing surveillance systems and population-based surveys, and if these strategies were pursued in tandem with a greater collection of work-related data in medical systems that capture diagnosed health states, our research could be further strengthened by avoiding biases that are common in studies that use only self-reported data. Challenges, such as the lack of training for most medical providers on the relationships between work and health, are perhaps balanced by the growing use of electronic medical records. Electronic medical records could make these data easier to capture and share for research purposes if data relevant to work were included. To be realized, such a goal requires the sort of unity on the inclusion of characteristics of work in population inequities research we are arguing for here.

Incorporating work in population health research enhances the possibility of disentangling race, class, gender, and other factors that influence health and health inequities, as well as

understanding how they all function in larger systems of support, advantage, and disadvantage. For instance, breastfeeding provides lasting health benefits to both mothers and their babies, and rates of breastfeeding initiation, intention, and duration in the United States differ by race, ethnicity, income, and nativity.[35] Work-related challenges to breastfeeding have been identified as important structural factors.[35] Further systematic exploration of these work-related challenges and how some groups of women end up, through the larger labor market and social forces, in occupations that limit or support their competing needs may further explain mechanisms behind observed racial/ethnic and income differences in this important health-promoting behavior. Furthermore, a focus on work could provide a venue for population-level—rather than individual-focused—intervention, because interventions in the workplace provide opportunities to change both the physical and social environments to support health.

More detailed knowledge about work would also help us to understand the clustering of negative factors on specific population groups. Several promising integrative frameworks exist that could benefit from a greater exploration of work.

Syndemics, for example, attempts to explain the presence and interlinkages of multiple disease states through the influences of social, political, and structural conditions.[36] Because of work's place in determining social and structural conditions, its fundamental or nearly fundamental positioning in causing the health states, the fact that work likely influences multiple disease states, and the fact that work is a fruitful venue in which to intervene, syndemics suits the project of explicitly addressing it. Intersectionality is another promising framework for such considerations. It suggests that larger structures of oppression and privilege converge on individuals and groups of individuals to pattern advantage and disadvantage[37]; one concrete place these structures may converge and materialize is the workplace. Both the life course perspective and theories of cumulative advantage and disadvantage include the element of experience over time; they examine the processes of creating health inequities, most frequently along lines of socioeconomic position or race[38] and therefore would be suited to understanding the role of work.[39] We argue that all these frameworks would elucidate challenges to health equity more completely with the explicit inclusion of work as a factor that connects person-level factors to higher-level structures.[8]

Including work in analyses could illuminate the etiology of chronic diseases that are costly both for the person's quality of life and for society. For instance, overweight and obesity, which are linked to several important chronic diseases, may relate to sedentary work, job stress, or lack of time for engaging in activities that mitigate these negative effects.[15] Working long hours in itself relates to the risk of developing several chronic diseases.[40] By examining the specific characteristics of work in more detail, we might highlight how work functions with chronic conditions; we might also better understand uneven patterning of these diseases and conditions.

Another advantage of exploring work's broader relationships with health is the opportunity for international comparisons. Other wealthy nations, and, increasingly, less wealthy ones, regularly query aspects of work, employment, and health through integrated surveys (e.g., the European Working Conditions Survey). If our tools were similar, we could undertake comparative research across contexts. Apart from furthering our understanding of the creation of health inequities, this would facilitate the development and adoption of interventions to ameliorate them.

Overlooking work in research on health inequities has for too long reduced the chance to fully use possibilities for intervention to promote health equity in terms of policy and resources. Fragmentation—of financial resources, of thinking, of ability to act and progress—makes us less effective than we might otherwise be.

CONCLUSIONS

We are not the first to call for greater inclusion of work in our quest to understand and ameliorate health inequities, and researchers are increasingly recognizing links between work and nonwork influences on population health.[1,15] Furthermore, occupational health and safety researchers have called for a broader perspective on work.[16,28] We view all these developments as important avenues to reintegrating work as an important determinant of health status and health inequities; to progress, we need to approach this from both sides. In so doing, we stand to gain more subtle understandings of how health and well-being are shaped for all. Most importantly, we stand to make better progress toward health equity. AJPH

CONTRIBUTORS

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