NIMHD

National Institute on Minority Health and Health Disparities

NIMHD NATIONAL ADVISORY COUNCIL
CONCEPT CLEARANCE FORM

Date of Council: February 2, 2021
Title of Initiative: The Role of Work in Health Disparities in the U.S.
Authors: Rada Dagher, Ph.D., M.P.H. and Nancy Jones, Ph.D., M.A.

Objective: The proposed initiative will support innovative population-based research that generates new knowledge to understand and address the role of work as a social determinant that contributes to health disparities.

Background: Although scientific and technological discoveries have improved the health of the U.S. population overall, racial/ethnic minority populations, sexual and gender minority populations, socioeconomically disadvantaged populations, and underserved rural populations continue to experience a disproportionate burden of disease and risk factors, unmet health care needs and other adverse health conditions. Work is known to be important to health as a source of "exposures and risk factors," a source of beneficial social and economic resources, and attainment of social position and status. While the importance of work for health outcomes and profound occupational segregation for populations that experience health disparities is known, few studies have explored to what extent and by what mechanisms work explains health disparities. Because work can be modified and is amenable to intervention, the examination of the role of work as a social determinant of health presents an opportunity for research that may illuminate causal pathways and potential solutions for health disparities.

There is a vast literature demonstrating the importance of work for health outcomes, mostly through direct effects due to exposures and risk factors arising from someone's occupation or workplace experiences. For example, 8.4% of all cancer deaths are attributable to workplace exposures.[1] Workplace physical conditions such as excessive heat or cold, noise, and physical exertion, and chemical hazards such as carbon disulfide, carbon monoxide, lead, and arsenic have been linked to cardiovascular disease.[2] Workplace psychosocial hazards such as job strain (low control, high psychological demands) are consistently associated with cardiovascular disease in cross-sectional and longitudinal studies.[3,4] Job strain is also associated with depression,[5] postpartum depression,[6] and obesity.[7] Precarious employment is linked to poor mental health.[8] Workplace discrimination is linked to poor mental health and problem drinking.[9] Heavy physical jobs, more precarious work, and limited health care benefits are linked with higher prevalence of opioid overdose deaths.[10] Lack of paid sick leave is associated with lower use of recommended cancer screening services,[11] higher likelihood of occupational injuries,[12] and increased duration of flu outbreaks at work,[13] Increased duration of paid parental leave is linked with decreases in perinatal, neonatal, post-neonatal, infant, and child mortality in member[14] and non-member[15] countries of the Organisation for Economic Co-operation and Development (OECD). With respect to health care outcomes in the U.S., work is the primary source of health insurance and access to health services.[16] In addition, workers can get medical care for work-related injuries or illnesses through the workers' compensation system.[16]

There is profound occupational segregation in the U.S. labor force.[17] The distribution of occupations among U.S. adults is strongly patterned by social identities consistent with populations that experience health disparities (e.g., race/ethnicity, immigrant status, socioeconomic status (SES), gender, rural/urban residence, and sexual minority status). For example, African Americans and Hispanics are the least likely to be in managerial and professional jobs and most likely to be in service and blue collar jobs.[18] A national study found consistent associations between working in race-segregated occupations and poor worker health.[19] There is also segregation within a workplace by social identities which can result in large differences in exposure to workplace hazards and benefits from workplace policies,[17] but the extent to which this explains health disparities in health outcomes is unknown. A recent study that examined occupations in Massachusetts with high mortality rates from COVID-19 found that mortality rates among Hispanic and Black workers were four times higher than White workers highlighting the need for such research.[20] This trend persisted within the same occupation group. For instance, Hispanic food preparation and serving workers had a mortality rate eight times that of White workers in the same occupation, and Black health care support workers had a rate nearly three times higher than that of White health care support workers.[20] Structural racism/discrimination is one of the important factors that may explain geographic patterns and the extent of occupation and workplace segregation seen in the U.S.

Research Gaps: Only a few studies have demonstrated that the unequal distribution of work exposures aligned with occupational segregation by race/ethnicity explains a proportion of the disparities seen in health outcomes, and no studies have examined health care disparities. Using data from the Multi-Ethnic Study of Atherosclerosis, African Americans were found to be more likely to work in jobs with lower substantive complexity than Whites, a work attribute that mediated 30% of their increased all-cause mortality rates.[21] In a national cohort of Black and White women and men, aged 45 years and older (the REGARDS study), lower work hazards mediated the association between higher education and lower mortality among White men, and higher substantive complexity of work explained the association between higher education and lower mortality among Black men and White women.[22] In another study, about 11 to 22% of the differences in cognitive function by education were explained by occupational complexity.[23] The extent to which the relationship between education and cognitive function was mediated by occupational complexity differed by race and gender.[23] Occupational health disparities research has mainly focused on work as a source of hazardous exposures, but recently there have been calls for population-based research to examine work through the social production of health inequities.[24] Moreover, there are large differences in life trajectories based on someone's work, including differences in achieving social status and position, and in access to work-related resources and social networks,[24] but how this influences health disparities has not been well examined.

NIH-Funded Grants: Portfolio analysis on occupation and work since 2011 revealed 69 grants across NIH: AG–24; HD–11; MD–10; CA–5; ES and MH–4; AA, DA, HL, and NR–2; AI, DK, and LM–1. (This analysis excluded ES R25 and U45 worker training programs on hazardous materials.) Five grants examined occupational hazards (cleaning agents, hazardous chemicals and pesticide exposure) and 19 grants examined occupational exposures (job stress, sedentary

work, work complexity, work conditions, child care instability, precarious employment) on health outcomes of which 80% examined effect by race/ethnicity or for a specific health disparity population. 26 grants used occupation as a social economic status indicator or teased apart occupation/occupational complexity's influence on education or educational attainment as a SES marker on various health outcomes such as Alzheimer's disease and related dementias (7), aging (5), birth outcomes (3), life course (4) and others. Nine grants explored the role of employment or unemployment on health or health care for specific patient populations (AIDS, autism, breast cancer, intellectual disabilities, alcohol and drug addiction). There were 17 interventions for worker, worksite, or unemployed individuals to reduce risk factors or exposures due to occupational work conditions, hazards or low income. Seven grants explored work related policies, such as minimum wage, paid sick leave, microeconomic interventions, and tax rates on health outcomes. Of the entire portfolio, nine specifically examined whether differences in work by race/ethnicity or SES can explain health disparities.

Description of Initiative: The overarching purpose of this initiative is to determine the extent to which work as a social determinant of health explains health disparities for racial/ethnic minority populations, sexual and gender minorities, underserved rural populations, and socioeconomically disadvantaged populations. A recent workshop organized by NIMHD (https://www.nimhd.nih.gov/news-events/conferences-events/hd-workshop.html) highlighted key ideas for furthering research on work as a social determinant of health that include conceptualizing work as a social class marker, as a source of "exposures and risk factors," and as a source of beneficial social and economic resources such as income and wealth, neighborhood conditions, health care access, education, and social networks. Some key questions include: What are the specific and modifiable mechanisms by which work explains health disparities? To what extent does work as a social class marker, source of "exposures and risk factors" and source of beneficial social and economic resources explain health disparities? Which health disparities does work explain?

Research Priorities: These include exploring the degree to which occupational segregation (the unequal distribution across occupations according to social identities) and worksite segregation (the unequal distribution of resources and exposures within the workplace) contribute to health and health care disparities for gender, racial/ethnic minority populations, sexual gender minorities, underserved rural populations, socioeconomically disadvantaged populations, and immigrants, and the mechanisms (e.g., hazardous conditions, unequal distribution of benefits, social class position) through which they explain health and health care disparities. Other research priorities include examining the trajectories of individuals in minority and low SES concentrated occupations and how they influence the achievement of life goals and optimal health, as well as evaluating upstream policies, regulations, and system-level trends that exacerbate or mitigate work's contribution to health and health care disparities.

References

1. Takala J, Hämäläinen P, Saarela KL, et al. Global estimates of the burden of injury and illness at work in 2012. *J Occup Environ Hyg.* 2014;11(5):326-337.
2. Price AE. Heart disease and work. *Heart.* 2004;90(9):1077-1084.
3. Belkic KL, Landsbergis PA, Schnall PL, Baker D. Is job strain a major source of cardiovascular disease risk? *Scand J Work Environ Health.* 2004;30(2):85-128.
4. Slopen N, Glynn RJ, Buring JE, Lewis TT, Williams DR, Albert MA. Job strain, job insecurity, and incident cardiovascular disease in the Women's Health Study: results from a 10-year prospective study. *PloS one.* 2012;7(7):e40512.
5. Häusser JA, Mojzisch A, Niesel M, Schulz-Hardt S. Ten years on: A review of recent research on the Job Demand–Control (-Support) model and psychological well-being. *Work & Stress.* 2010;24(1):1-35.
6. Dagher RK, McGovern PM, Alexander BH, Dowd BE, Ukestad LK, McCaffrey DJ. The psychosocial work environment and maternal postpartum depression. *International journal of behavioral medicine.* 2009;16(4):339.
7. Choi B, Dobson M, Landsbergis P, et al. Job strain and obesity. *Journal of Internal Medicine.* 2014;275(4):438-440.
8. Vives A, Amable M, Ferrer M, et al. Employment Precariousness and Poor Mental Health: Evidence from Spain on a New Social Determinant of Health. *Journal of Environmental and Public Health.* 2013;2013:978656.
9. Rospenda KM, Richman JA, Shannon CA. Prevalence and mental health correlates of harassment and discrimination in the workplace: results from a national study. *J Interpers Violence.* 2009;24(5):819-843.
10. Shaw WS, Roelofs C, Punnett L. Work Environment Factors and Prevention of Opioid-Related Deaths. *American Journal of Public Health.* 2020;110(8):1235-1241.
11. Peipins LA, Soman A, Berkowitz Z, White MC. The lack of paid sick leave as a barrier to cancer screening and medical care-seeking: results from the National Health Interview Survey. *BMC Public Health.* 2012;12:520.
12. Asfaw A, Pana-Cryan R, Rosa R. Paid sick leave and nonfatal occupational injuries. *Am J Public Health.* 2012;102(9):e59-64.
13. Drago R, Miller K. Sick at work: infected employees in the workplace during the H1N1 pandemic. *Institute for Women's Policy Research.* 2010(B264).
14. Tanaka S. Parental Leave and Child Health across OECD Countries. *The Economic Journal.* 2005;115(501):F7-F28.
15. Nandi A, Hajizadeh M, Harper S, Koski A, Strumpf EC, Heymann J. Increased Duration of Paid Maternity Leave Lowers Infant Mortality in Low- and Middle-Income Countries: A Quasi-Experimental Study. *PLoS Med.* 2016;13(3):e1001985.
16. Lipscomb HJ, Loomis D, McDonald MA, Argue RA, Wing S. A conceptual model of work and health disparities in the United States. *Int J Health Serv.* 2006;36(1):25-50.
17. Gee GC, Ford CL. STRUCTURAL RACISM AND HEALTH INEQUITIES: Old Issues, New Directions. *Du Bois Rev.* 2011;8(1):115-132.
18. U.S. Department of Labor BoLS. Labor force characteristics by race and ethnicity, 2018. In:2019.

19. Chung-Bridges K, Muntaner C, Fleming LE, et al. Occupational segregation as a determinant of US worker health. *American Journal of Industrial Medicine.* 2008;51(8):555-567.
20. Hawkins D, Davis L, Kriebel D. COVID-19 deaths by occupation, Massachusetts, March 1–July 31, 2020. *American Journal of Industrial Medicine.*n/a(n/a).
21. Fujishiro K, Hajat A, Landsbergis PA, Meyer JD, Schreiner PJ, Kaufman JD. Explaining racial/ethnic differences in all-cause mortality in the Multi-Ethnic Study of Atherosclerosis (MESA): Substantive complexity and hazardous working conditions as mediating factors. *SSM Popul Health.* 2017;3:497-505.
22. Fujishiro K, MacDonald LA, Howard VJ. Job complexity and hazardous working conditions: How do they explain educational gradient in mortality? *J Occup Health Psychol.* 2020;25(3):176-186.
23. Fujishiro K, MacDonald LA, Crowe M, McClure LA, Howard VJ, Wadley VG. The Role of Occupation in Explaining Cognitive Functioning in Later Life: Education and Occupational Complexity in a U.S. National Sample of Black and White Men and Women. *J Gerontol B Psychol Sci Soc Sci.* 2019;74(7):1189-1199.
24. Ahonen EQ, Fujishiro K, Cunningham T, Flynn M. Work as an Inclusive Part of Population Health Inequities Research and Prevention. *Am J Public Health.* 2018;108(3):306-311.