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Original Article

Health Inequalities Among Korean Employees

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ABSTRACT

Background: Social status might be a determinant of occupational health inequalities. This study analyzed the effects of social status on both work environments and health outcomes.

Methods: The study sample consisted of 27,598 wage employees aged 15 years and older from among the Korean Working Condition Survey participants in 2011. Work environments included atypical work, physical risks, ergonomic risks, work demands, work autonomy, social supports, and job rewards. Health outcomes comprised general health, health and safety at risk because of work, the World Health Organization-5 Well-being Index, work-related musculoskeletal disease, and work-related injury. Multivariable logistic-regression models were used to identify the associations between social status and work environments and health outcomes.

Results: Employees in the demographically vulnerable group had lower occupational status compared with their counterparts. Low social status was largely related to adverse work environments. Especially, precarious employment and manual labor occupation were associated with both adverse work environments and poor health outcomes.

Conclusion: Precarious and manual workers should take precedence in occupational health equity policies and interventions. Their cumulative vulnerability, which is connected to demographics, occupational status, adverse work environments, or poor health outcomes, can be improved through a multilevel approach such as labor market, organizations, and individual goals.

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1. Introduction

Health inequality is a common term used to label differences, variations, and disparities in health status or in the distribution of health determinants between segments of a population [1]. Health inequity is the unfair and unjust status in health achievements observed in populations. Most health inequalities are absolutely inequitable [1,2]. Social determinants of health inequalities are commonly responsible for health or health determinants [3,4].

By the World Health Organization conceptual framework of Social Determinants of Health, socioeconomic positions such as income, education, occupation, sex, and race/ethnicity were defined as social determinants of health inequalities. These social determinants of health inequalities operate through a set of intermediary determinants of health to shape health outcomes. These intermediary determinants of health are named as social determinants of health. The main social determinants of health are social gradient, stress, early life, social exclusion, work,

unemployment, social support, addiction, food, and transport [4]. By the macrostructural framework of employment relations and health inequalities, policies for labor market and welfare state affects employment conditions that include type of employment, social class, sex, and age. Social class, age, and sex are key relational mechanisms that describe why different types of employment conditions connected to multiple disease outcomes through multiple risk-factor mechanisms [4,5]. Therefore, social class, age, sex, and type of employment are important factors as the social determinants of health inequalities. These social inequalities in both work environments as health determinants and health outcomes should be explored.

Globally, inequality exists among working populations with biological, social, or economic characteristics, which can cause poor health conditions. Some of the people at risk for these poor health conditions include low-wage and temporary workers, young and old workers, racial and ethnic minority workers, and medically challenged workers [6]. The global economic crisis and

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neoliberalism economy have caused labor polarization that could place more workers in jeopardy of health inequality.

The labor market contains a wide set of economic, social, political, and cultural work-related factors [7]. Social determinants of occupational health inequalities are characterized by the labor market. Notably, labor polarization in Republic of Korea has been intensified by the segregation of gender, age, occupational class, employment status, and company size [8–10]. This strong labor market segmentation and discrimination has caused employment inequality among some working groups [11]. Consequently, underprivileged workers are more exposed to adverse work environments resulting in poor health [5,12,13]. Unfortunately, the efforts to address occupational health inequality in the Korean labor market have been insufficient in all areas, including research, intervention, and policy.

Against this background, this study included age, sex, and occupational status as social status indicators showing social determinants of occupational health inequalities. In addition, it is important to consider both personal and work-related characteristics in occupational health equity epidemiology. In this study, data were obtained from the Korean Working Condition Survey, including comprehensive working conditions, carried out in 2011. This study presents the patterns of social status and their effects on the work environments and health outcomes among Korean employees to redress the current patterns and magnitude of health inequities by taking action on the social determinants of occupational health inequalities.

2. Materials and methods

2.1. Participants and study sample

This study analyzed data from the third wave of the Korean Working Condition Survey, which was carried out by the Occupational Safety and Health Research Institute in 2011. The survey sample represented the working population aged ≥ 15 years with a total of 50,032 participants selected by a multistage, stratified random sampling method. The survey was conducted in workers' homes by face-to-face interviews. This study included only wage employees and excluded employers, self-employed workers, and soldiers. The final data included 27,598 wage employees (16,250 men and 11,348 women) for analysis. This study was approved by the Institutional Review Board.

2.2. Measures

Social status was measured by age, sex, employment status, occupational class, and company size. Age was categorized as follow: 15–24 years, 25–54 years, and 55 years and older. Employment status included precarious and full-time permanent employment. Precarious employment was defined as temporary, daily, or part-time (≤ 30 h/wk) work; a fixed term contract; a sub-contract; or dispatch work [14–16]. Full-time permanent employment was defined as working more than 30 h/wk with an indefinite contract. Occupational class was divided into white collar (legislators, senior officials and managers, professionals/technicians, and associate professionals), pink collar (clerks, service, and sales workers), blue collar (forestry and fishery workers, craft and related trade workers, plant and machine operators, and assemblers), and unskilled occupations (elementary occupations) according to the four broad occupational groupings of the Organization for Economic Co-operation and Development [9]. Company size was categorized into companies with one to four workers, five to 49 workers, and 50 or more workers.

Work environments included atypical work, physical risks, ergonomic risks, work demands, work autonomy, social supports, and job rewards. Atypical work was defined as having night or weekend work at least four or more times per month. Physical risk was classified as exposure or no exposure. Exposure was defined as being exposed to one or more of the following eight risks for more than half of daily work time (Cronbach $\alpha = 0.78$): (1) noise so loud that workers had to raise their voice to talk to people; (2) high temperatures that make workers perspire even when not working; (3) low temperatures, whether indoors or outdoors; (4) breathing in smoke, fumes, powder, or dust; (5) breathing in vapors generated by solvents and thinners; (6) handling or being in skin contact with chemical products or substances; (7) exposure to tobacco smoke from other people; and (8) handling or being in direct contact with infectious materials (waste, bodily fluids, and laboratory materials). Ergonomic risk was divided into exposure and no exposure. Exposure was defined as being exposed to one or more of the following four risks for more than half of daily working time (Cronbach $\alpha = 0.76$): (1) vibrations from hand tools and machinery; (2) tiring or painful positions; (3) carrying or moving heavy loads; and (4) repetitive hand or arm movements. Work demand (Cronbach $\alpha = 0.74$) was measured with two seven-point scale items: working at high speed and working with deadlines. Individuals who scored below and above the median of this scale were grouped as having “low” and “high” work demands, respectively. Work autonomy was measured with five questions (Cronbach $\alpha = 0.70$): having authorization to (1) choose or change the order of tasks (yes = 1, no = 0); (2) select work methods (yes = 1, no = 0); (3) determine work speed (yes = 1, no = 0); (4) influence the choice of working partners (always/most of the time = 1, sometimes/rarely/never = 0); and (5) take a break when desired (always/most of the time = 1, sometimes/rarely/never = 0). Work autonomy also used the median score to dichotomize the level into “low” and “high.” Social support received from peers was measured on a five-point scale (1–5, ranging from “always” to “never”) and was dichotomized into having “low” (sometimes/rarely/never) and “high” (always/most of the time) social support. Job reward was measured with wage compensation and promotion prospects (Cronbach $\alpha = 0.60$). When the participants answered “yes” to at least one item, their responses were coded as “yes” and when they answered “no” to both items, they were coded as “no.”

Health outcomes were measured by general health, health and safety at risk because of work, mental health at risk, work-related musculoskeletal disease, and work-related injury. General health was measured with a dichotomized variable: good (“very good” and “good”) and bad (“fair,” “bad,” and “very bad”). Health and safety at risk because of work was assessed by the following question, using yes and no: “Do you think your health or safety is at risk because of your work?” Mental health at risk was assessed with the World Health Organization-5 Well-being Index [17], which consists of five items reflecting positive mood, vitality, and general interests over the previous 2 weeks. The index score ranges from 0 to 25, and scores ≤ 13 are considered to be mental health at risk in the general population [18]. Work-related musculoskeletal disease was assessed using two questions: (1) “over the past 12 months, have you had any health problems?” (backache, muscular pain in shoulders, neck, and/or upper limbs, or muscular pain in lower limbs); and (2) “was your health problem associated with or caused by work?” If the answer was “yes” to having any health problems and “yes” to health problems being associated with or caused by work, participants were considered to have work-related musculoskeletal disease. Work-related injury was measured using two questions: (1) “Over the past 12 months, have you had any injury?”; and (2) “Was your health problem associated with or caused by

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