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EDITORIAL

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Preventing overwork-related deaths and disorders—needs of continuous and multi-faceted efforts

This issue of *J Occup Health* (Vol. 61, No. 3) published three relevant reviews on overwork-related disorders in Asian countries, where this health problem has drawn a large amount of attention. In these three countries (Japan, South Korea, and Taiwan), workers tend to spend long hours at work. Furthermore, these are the only countries in which official worker's compensation guidelines recognize long-term overtime hours as a work-related factor for cardiovascular diseases (CVD). The labor administration in these countries have launched several countermeasures against overwork-related disorders. In Japan, the 2014 legislation regarding the prevention of overwork-related deaths and disorders including suicide (*karoshi* and *karojisatsu*) has accelerated research in this field. Japanese studies have identified several characteristics of *karoshi* and *karojisatsu*, and implemented preventive actions based on the findings.[1] Following the Japanese legislation, South Korea developed several prevention and compensation policies in response to long working hours. These policies appear to function by improving working conditions in South Korea. However, researchers suggest that a major issue remains in small- and medium-sized companies, which is also an issue in Japan.[2] Chang and Lin reviewed the background, revision, and impact of policy changes regarding overwork-related CVD in Taiwan and found there were difficulties in implementing effective measures nationwide.[3]

Karoshi was first recognized as a social problem in Japan as early as the second half of the 1980s, however, scientific evidence regarding the prospective relationship between long working hours and CVD has only accumulate recently. Meta-analyses based on pooled data from European cohort studies, which included unpublished research, provided the most robust evidence related to the research question.[4] This analysis showed elevated risks for CVD among those who worked long hours compared with those working standard hours. The association with long working hours was stronger when stroke was the outcome, than when coronary heart diseases were outcomes: clear dose-response patterns were observed between long working hours and stroke onset.[4] The prospective association between long working hours and onset of depression was also examined. One study that included 10 published cohort studies and 18 unpublished studies showed a statistically significant (albeit weak) risk elevation.[5] The analyses found weak or non-significant risk elevation among studies from European and US/Australian cohorts, but did find a moderate risk elevation among studies from Asia, which included countries with long working hours, such as Japan and South Korea. These research questions are now about to be replicated.

The mechanisms through which long working hours lead to onset of CVD are often explained by the exposure to adverse workplace hazards induced by long working hours and the reduced time resulting from long working hours. The former mechanism includes psychosocial stress, physical (noise), and the chemical (dust and toxic chemicals) environment. The latter includes lack of sleep and physical activity.[6] These upstream factors are thought to induce behavioral mechanisms (eg, over eating and drinking alcohol), followed by then clinical stage before manifesting CVD (eg, high blood pressure, dyslipidemia, diabetes, inflammation, atrial fibrillation, and hypercoagulability).

There is room for interventions focused on working hours. Articles in this issue of *J Occup Health* suggest several countermeasures along with legislation to regulate overtime by setting a limit.[1-3] One suggested measure is introducing a minimum daily rest period to facilitate recovery from occupational fatigue and ensure workers get sufficient sleep. However, *karoshi* and *karojisatsu* cannot be prevented by decreasing working hours alone. Reducing working hours may result in high intensity work or stopping the supply of necessary services, unless there are also changes in the quantity of work or ways of handling tasks. Working hours are also closely related to occupational stress. Interviews and consequent measures by occupational physicians are being implemented for workers who work beyond the overtime limits, and workers who are identified as having high stress and request to meet with physician under Japan's Stress Check Program.[1] Avoiding trauma—occupational injuries—would also help

to prevent workers from psychological damages. Creating a safe psychological environment is therefore an important strategy. In today's society, boundaries between working and private lives are ambiguous, and careful attention should be paid to immersion of exposure in the workplace into private life. In addition, some kinds of consumption behaviors are related to working hours in contemporary businesses. For example, people enjoy the convenience of overnight delivery, but this consumption behavior places a burden on the distribution system. Continuous and multifaceted efforts, including increased public understanding, are necessary to prevent overwork-related deaths and disorders.

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