Policy responses to work-related stress: examining Taiwan’s experiences from a welfare state regime perspective

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Running title: Policy responses to work-related stress
Abstract

Objectives: Welfare state characteristics are known to influence the formulation of health policy but their influences on policy level interventions specifically targeting psychosocial hazards at work and stress-related health risks have not been explored. This study examined cross-country differences in employment-related welfare state characteristics and reviewed Taiwan’s experiences from a welfare state regime perspective.

Methods: Union density, collective bargaining coverage, level of public social expenditure, female and old-age labor participation rates and average working hours were compared across countries. Policy level interventions undertaken in Taiwan were reviewed and compared with that in other countries.

Results: Employment conditions of Taiwan are characterized by low level of public social expenditure, low collective power of workers, low labor participation rates of women and older population, but substantially long working hours. Since the early 1990s, the labor authority has undertaken various types of interventions to deal with growing social concerns on stress-related health risks at work. However, these measures have not addressed macro-level factors and have been mostly individually focused.

Conclusion: While international experiences are informative for less developed countries, a comprehensive understanding of local context is essential for developing effective policy actions to work-related stress. (192 words)

Keywords: policy, work-related stress, psychosocial risks at work, international comparison, Taiwan, review
1 Introduction

1.1 Background and significance

Epidemiologic studies accumulated over the past few decades identify numerous psychosocial work hazards such as long working hours, irregular work shift, heavy workloads, high speed, lack of job control, monotonous and repetitive work tasks, low social support, inadequate work rewards, precarious employment, organizational injustice as well as bullying and violence [1-4], which are associated with a wide range of stress-related health risks, including cardiovascular diseases, musculoskeletal disorders, mental health problems, burnout, fatigue, psychosomatic problems and even occupational injuries [3-7].

Several reports and empirical studies suggested that psychosocial work conditions have been deteriorating on a global scale [8-12]. In response to growing awareness and public concerns on health risks due to work-related stress, many countries have taken steps at the policy level. Various types of policy actions have been carried out, ranging from banning mandatory overtime, expanding employers’ obligation to incorporate psychosocial risk management, establishing preventive health measures, recognizing stress-related claims for workers’ compensation or social benefits, adjusting return to work programs, etc [13-25]. Especially in European countries, considerable efforts have been made since the introduction of the European Framework Directive on Safety and Health at Work (Directive 89/391 EEC) of 1989, which emphasizes on prevention and risk management concerning all types of risks to workers’ health, including those related to psychosocial hazards[26].

However, preventive activities are implemented mainly in economically advanced countries where labor market regulation and occupational health protection systems are better established. While psychosocial work conditions are expected to worsen in a greater rate in emerging economies, it is important to explore whether the experiences from developed countries are relevant and applicable in less developed countries. An exploratory study by Kortum and colleagues found that experts from
developing countries also perceived psychosocial risks and work-related stress as major occupational health concerns, however, experts’ awareness and knowledge have rarely been translated into policy actions [27]. A number of barriers were raised, including lack of resources, lack of information, lack of political will, poor enforcement, increasing vulnerability of workers in the context of globalization, socio-economic conflicts, etc, leading the authors to conclude that the development of intervention strategies should go beyond the working environment to incorporate larger social, political and economic contexts. However, these barriers have not been analyzed with a theoretical framework.

There has been growing interests in exploring the role of welfare regime type in shaping health policies and health inequalities [28-32]. A few of recent studies further suggested that supportive welfare policies can help to ameliorate negative consequences of stressful work conditions such as precarious employment [33, 34]. However, to our knowledge, few studies have explored the influence of welfare state regime type on policy actions specifically targeting on work-related stress.

1.2 Typology of welfare state regimes

Welfare state refers to the role of the state in delivering social services such as health care, education, housing, poor relief and social insurances. According to Esping-Andersen[35, 36], Western capitalist countries can be broadly grouped into three major types of welfare state regimes, based on the level of de-commodification (the extent to which social policy make individual independent of the market), the level of social stratification (the extent to which social policies differentiate in the treatment of different groups) and the private-public mix of welfare provision (the relative role of the state, the market and the family in providing services).

Countries of the Social Democratic regime type (SD, e.g., Denmark, Sweden, Norway) are characterized with high levels of state interventions; in these countries labor unions are strong and social policies are designed to ensure full employment and equal access to public services and social benefits. In countries of the Conservative
or Corporatist regime type (C, e.g., Germany, France), welfare services are provided with compulsory insurance schemes, through which differential social welfares are provided based on occupational categories and family structures. Countries of the Liberal welfare type (L, e.g., USA, UK, Canada, Australia) are characterized with a residual and means-tested approach with limited public services delivered to the most vulnerable populations.

East Asian countries including Japan, Korea, Singapore and Taiwan have been grouped into the East Asian regime type (EA)[31]. Similar to the Liberal welfare states, social welfare provisions are also limited and based on a means test principle. But social policies of the East Asian welfare states rely on the family to a greater extent in providing social services and put greater emphasis on promoting and ensuring economic growth.

1.3 Welfare state characteristics as macro-level social determinants of psychosocial risks at work

Welfare state characteristics are conceptualized as the upstream structural factors in shaping population health[28-32]. According to the multilevel framework proposed by Benach, Muntaner et al, power relations among the major social actors (i.e., governments, political parties, corporations, unions, political parties and the civil society) are important country-level characteristics that in turn determine the level of state regulatory power in protecting workers as well as the level of institutionalized social support workers can count [37, 38]. A modified framework is illustrated in Figure 1.

One can expect that in countries where workers’ collective power is stronger, such as the case in the Nordic countries, social welfare benefits will be more generous and labor protection policies will be more effective and more likely to address macro structural factors rather than targeting vulnerable workers on an individual basis. In
the case concerning work-related stress, policy interventions can be in the form of labor market regulations such as banning mandatory overtime, imposing greater responsibility on employers, establishing surveillance systems of psychosocial work conditions, or in the form of social welfare policies such as granting sickness benefits to workers with early symptoms of stress-related health problems, providing worker compensation benefits to workers who suffer from irreversible work-related disability.

A study by Dragano et al has shown that the variations in psychosocial risks at work across 12 European countries were largely explained by welfare regime type – i.e., countries characterized with more active labor policies to engage female workers and older workers and with more reliable social protection systems were found to have better psychosocial work quality [39]. In an ecological study of 31 European countries by Dollard et al, union density was found to be significantly correlated with psychosocial safety climate – which measures the extent to which management is committed to prevent psychosocial risks and to protect workers against work-related stress [40]. However, research on this topic is still limited and existing knowledge has been restricted to European experiences.

This study was designed to examine the differences across countries in welfare characteristics as well as different focuses of policy level interventions. A number of welfare state characteristics were chosen for cross-country comparisons, namely: the level of public social expenditure as a percentage of GDP which is the most commonly cited indicator to reflect the extent to which governments assume responsibility for supporting disadvantaged groups; the levels of trade union representation and collective bargaining coverage, which are found to be important factors in determining working conditions and wage inequalities [41]; and labor participation rates of women and old age groups, since full employment policies especially those to actively engage women and older populations are known as inherent parts of welfare state programs [35]. Average yearly working hours were also compared, as the length of work is subjected to labor market regulations and itself is an essential if not the only indicator of workloads. Secondly, policy actions taken in Taiwan were reviewed and compared with the experiences of other countries.
2 Methods

2.1 Data sources

*Trade union density* corresponds to the ratio of wage and salary earners that are members of trade unions (including industrial unions and craft/occupational unions) divided by the total number of wage and salary earners [41]. For OECD countries, data were extracted from the OECD *Labour Force Statistics* ([http://stats.oecd.org/Index.aspx?QueryId=20167#](http://stats.oecd.org/Index.aspx?QueryId=20167#)). Data of Taiwan was obtained from official statistics of the Council of Labor Affairs ([http://statdb.cla.gov.tw/statis/jspProxy.aspx?sys=210&kind=21&type=1&funid=q05014&rnd=pecilqyq](http://statdb.cla.gov.tw/statis/jspProxy.aspx?sys=210&kind=21&type=1&funid=q05014&rnd=pecilqyq)), but the numerator for the calculation of union density in this study includes only workers of industrial unions, taken into consideration that the nature of occupational unions in Taiwan is quite different from conventional unions in the sense that the majority of such unions are controlled by employers thus can hardly represent workers’ collective power.

*Coverage rate of collective bargaining* refers to the number of workers in employment whose pay and employment conditions are determined by one or more collective agreements as a proportion of all workers who are eligible to sign on a collective agreement [41]. Data of the OECD countries were obtained from an online report ([http://www.oecd-ilibrary.org/economics/oecd-economic-surveys-chile-2012/union-density-and-collective-bargaining-coverage_eco_surveys-chl-2012-graph36-en](http://www.oecd-ilibrary.org/economics/oecd-economic-surveys-chile-2012/union-density-and-collective-bargaining-coverage_eco_surveys-chl-2012-graph36-en)). The coverage rate of collective bargaining of Taiwan estimated by the following method (to be added).

*Social Expenditure as a percentage of GDP (SE) of the OECD countries* were obtained from on-line statistics: [http://stats.oecd.org/Index.aspx?QueryId=4549#](http://stats.oecd.org/Index.aspx?QueryId=4549#) (Social Expenditure - Aggregated data; Source: Public).

Annual working hours of the OECD countries were calculated based on data extracted from the OECD Labor Statistics. Actual hours work per week was multiplied by a factor of 52 weeks to annual hours worked estimates (http://stats.oecd.org/Index.aspx?DatasetCode=LFS_SEXAGE_I_R#). Annual working hours of Taiwan were calculated with the same method based on data obtained from household surveys conducted by the Taiwan’s Directorate-General of Budget, Accounting and Statistics of Taiwan (DBA 2012; http://www.dgbas.gov.tw/ct.asp?xItem=18844&ctNode=4943&mp=1).

2.2 Policy level interventions to work-related stress

International experiences were reviewed by searching Web of Science within the time period between 2001 and 2013 with the key words were ‘job stress’, ‘work stress’, ‘work-related stress’, ‘psychosocial risk’, ‘psychosocial hazards’, ‘policy’, ‘intervention’, ‘regulation’, ‘legislation’. Complemented search was also performed by checking references of searched publications. The development of policy actions concerning work-related stress in Taiwan were studied by reviewing official documents, legislations, commentaries and media reports published in Chinese.

3 Results

3.1 International comparisons of welfare state characteristics

Table 2 summarizes cross-country variations in a number of employment-related welfare state characteristics. Higher levels of public social expenditure as the percentage of GDP, mostly above 23%, were found in European countries regardless
the regime type. In contrast, Taiwan and South Korea had low levels of public social expenditure. There were wide variations in the levels of collective power of workers across countries. Generally speaking, Nordic countries had high levels of both union density and collective bargaining coverage. Among the western countries, workers in the United States had much lower collective powers as reflected by low union density and low coverage rate of collective bargaining, but the lowest rates were found in Taiwan. Except in South Korea and Taiwan, labor participation rates of women were above 60% in all the other countries. In female population aged between 55 and 64 years old, the lowest labor participation rate was found in Taiwan.

(Insert Table 2 about here)

3.2 International comparisons of working hours

The yearly working hours in most of the western countries including Japan were in the range of 1,600 – 1,800 hours. In contrast, the yearly working hours were 2,272 hours in Taiwan and 2,090 hours in South Korea.

3.3 Types of policy level interventions undertaken around the world

Policy interventions concerning work-related stress can be implemented at different levels – from the macro level, the organization level, the work task level to the individual level. Within each level, interventions can be further categorized into 3 different stages, namely primary, secondary or tertiary. Primary preventions refer to preventative actions before health problems have ever occurred, secondary preventions involve early detection and treatment of existing but unnoticed health problems, and tertiary preventions consist of actions to reduce or eliminate negative consequences after stress-related health events have occurred [15, 42] (Table 1).

(Insert Table 1 about here)
Actions targeting at the macro level are considered the most fundamental, especially those in the form of legally binding regulations. Regulations on working hours are the most commonly cited, but there are many other macro level primary interventions such as regulations against unfair labor practices, employment security regulations and policies that impose employers responsibility of providing employment-related welfare benefits [37, 42]. Examples of interventions targeting at the work organization level include requirement to establish work-family programs or a psychosocial risk control system in the workplace, both are considered as primary prevention. Requirement to establish an employee assistance program for assisting diseased or injured workers to return back to work after the occurrence of stress-related events are examples of organizational level tertiary intervention. Requirements to avoid repetitive work are examples of primary interventions targeting at the task level, while the provision of health consultation to individual workers with burnout or psychosomatic problems are typical individual level secondary intervention [42].

Based on literature review, various types of interventions have been developed around the world. In some countries such as Denmark, Sweden, UK and Australia, legislation has been revised or expanded to incorporate employers’ general duty in controlling psychosocial risks at work [18-22]. The purview of labor inspection has also been expanded to include psychosocial work hazards [18, 22].

In the UK, management standards and assessment tools specifically designed for the control of psychosocial work hazards are provided, but are implemented by work organizations on a voluntary basis [23, 25]. In some countries including German, social dialogue between employers and workers are being highlighted along with an emphasis on corporate social responsibility[16]. In some countries including the Netherlands, return-to-work programs have been established [13].

The US, Canada, Australia, Japan and South Korea have modified their workers compensation systems to acknowledge stress-induced diseases as occupational events [43, 44] [15, 17, 24, 45]. Specific eligibility criteria for determining the
work-relatedness of stress-related diseases for worker compensation benefits are promulgated in Japan and South Korea [24]. In Japan and South Korea, health screenings have been provided to help identify workers with early stress-related symptoms [13, 14].

3.4 Policy level interventions in Taiwan

In Taiwan, regulations concerning employment relations are stipulated mainly by the Labor Standard Act (LSA) promulgated in 1984, while the Occupational Safety and Health Act (OSHAct) first promulgated in 1974 is the main legislation for the management and control of workplace hazards. The OSHAct was recently amended in 2013 to incorporate regulations concerning workplace violence and preventive health measures for the control of health risks due to heavy workloads. Regulations concerning workers’ compensation, on the other hand, scatter in several laws including the Labor Insurance Act, the LSA and a few others.

Policy level responses toward work-related stress began with the modification of workers’ compensation system to accept stress-related claims as occupational diseases. Being influenced by Japan’s experiences – cases of sudden deaths due to overwork were repeatedly reported in Japan leading to a major reform in worker’s compensation and to the promulgation of a revised diagnosis guideline for occupational cardiovascular diseases in 1987[24], the public of Taiwan became aware of the link between heavy workloads and cardiovascular risks. In the early 1990s, sudden deaths allegedly attributed to overwork were also reported in Taiwan, most of such cases were found to have cardiovascular or cerebrovascular causes.

Following the steps of Japan, the labor authority of Taiwan promulgated a diagnose guideline in 1991 for the determination of work-relatedness of cardiovascular and cerebrovascular events. The diagnosis guideline was further amended in 2004, which adopted Japan’s 2001 guideline and defined ‘heavy workloads’ according to average overtime working hours. However, virtually no CVD cases had ever been recognized as occupational disease until 2006. The latest
amendment was announced in December of 2010, which was to respond intensive media report concerning a 29-year old male engineer who died suddenly at home after regularly working overtime at a well-known technology company. Concerning work-related mental disorders, the Labor Insurance Act was amended in 2009 to incorporate a new article which states that “insured workers who suffer from mental illness can be recognized as an occupational disease, on the condition that a causal relationship can be proved”. The diagnosis guideline for the determination of work-related mental disorders also follows the blueprint of the Japanese version promulgated in 1999.

It was not until in recent years the labor authority began to make efforts in strengthening labor inspection on working hour regulations. The labor authority has strengthened labor inspection on general work conditions (more specifically on working hour regulations) since 2008; however, these actions have mostly targeted on large-size enterprises. Results released from the labor inspectorate indicated that in 2012, 30% of large-sized enterprises violated working hour regulations which are stipulated in the Labor Standard Act. It can be expected that violation would be even more severe in smaller-sized enterprises. Mandatory overtime work without pay, despite in violation of the law, appears to be a taken for granted work practice.

Concerning the prevention of work-related stress, the labor authority of Taiwan has largely focused on working hour problem. Some policy actions have been undertaken, including strengthening labor inspection, increasing fine, passing new regulations that required enterprises to conduct risk assessment, health screening and health management in the workplace. The major legislation – OSHAct – was also substantially revised in 2013 which contains general duty clause and new regulations on the prevention of health risks caused by heavy workloads, irregular work shift, workplace violence etc. Public awareness has increased and the labor authority is taking actions to tackle the problems of work-related stress. However, most of the regulations are poorly implemented due to a lack of supervision and enforcement mechanisms as well as low levels of punishment.
4. Discussion

There were wide variations in the level of social expenditure as well as in collective power of workers across countries, which have strong influences in types of intervention strategies chosen in each country. As compared to other countries, Taiwan’s approaches are individual oriented and focus on tertiary level intervention. At the same time, regulations concerning employment conditions and minimum labor standards are commonly violated, indicating that the government lacks political commitment in enforcing stipulated labor protection regulations.

Lack of collective power combining with weak regulatory mechanisms is the root cause for the inertness in which individual workers often have to endure inappropriate work arrangements. On the other hand, the economic branch of the government has actively promoting free-economic zones in attempt to boost the country’s economy. Such policy initiatives are expected to have substantially detrimental effects on work-related stress risks.

Numerous regulations and guidelines concerning work stress have been promulgated in Japan, which have greatly influenced the policy development in Taiwan. In Japan, Korea and Taiwan, the labor authorities have responded to stress-related health problems by amending recognition criteria regarding ‘work-relatedness’ of disease events for worker compensation, by introducing more intense health screenings (especially for cardiovascular risks), and to a limited extend, by strengthening labor inspections on labor conditions which have been stipulated by labor laws but poorly enforced [24, 46-49]. It is an unique feature that Japan, Korea and Taiwan are the only three countries around the world which officially recognize cardiovascular diseases due to overwork as compensable occupational disease [24, 48]. However, despite of the similarity of the diagnosis guidelines across the three countries, Taiwan has the lowest compensation rates for stress-related occupational diseases.

Workers in Japan, Korea, Taiwan and some regions of China are found to have
long working hours. Workers are found to have been overworked, excessively stressed and displaying symptoms of fatigue, burnout, depression, anxiety, musculoskeletal discomfort, sleeping disorders and high incidence of work-related injuries. Long working hours, excessive workload, stand by duties, inadequate physical activities and unhealthy lifestyles are often cited as key causes of work-related fatigue. Interestingly, in China when a string of suicides in a gigantic-sized manufacturing factory were uncovered by the media in 2010, the Taiwanese-owned company responded to public scrutiny by increasing workers’ wages.

In contrast to western countries where stress-related mental disorders were more commonly compensated, policy responses in Taiwan have focused largely on cardiovascular and cerebrovascular events. This phenomenon might indicate a greater tendency to stigmatize and attribute mental illnesses as personal problems in Asian cultures than in western cultures.

While preventive measures to reduce working hours and to manage early symptoms of stress-related illnesses have been implemented in Japan and Korea, few effective efforts have been undertaken to prevent the problems of work stress in Taiwan. In fact, most of the governmental policies have encouraged labor deregulation and the governments at all levels and enterprises alike are dedicated to implementing personnel cost-down. In recent years, the proportion of workers with prolonged working hours has been on a rise in Taiwan [12]. We argue that without targeting on macro-level factors such as labor relations and labor and social welfare policies, the OSH measures are likely to be palliative and are not sufficient to tackle the problems of work stress. The nature of job stress problems and policy responses are embedded in social context, which differ greatly across countries in terms of social and labor market conditions. While international experiences are informative for less developed countries, a comprehensive understanding of local context is essential for developing effective policy actions to work-related stress.
References


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40. Dollard, M.F. and D.Y. Neser, *Worker health is good for the economy: Union density and psychosocial safety climate as determinants of country differences in worker


<table>
<thead>
<tr>
<th>Stage of intervention</th>
<th>Primary</th>
<th>Secondary</th>
<th>Tertiary</th>
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<tbody>
<tr>
<td>Goal</td>
<td>To reduce work hazards before workers experience stress-related health problems</td>
<td>To detect and ameliorate early symptoms of stress-related illnesses</td>
<td>To minimize the negative effects of stress-related events or illnesses after they have occurred</td>
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<tr>
<td>Level of Intervention</td>
<td>Macroeconomic/organizational</td>
<td>Macro/societal  Working hour regulation, regulations and inspection on psychosocial hazards Monitoring and notifying systems of early stage symptoms; sick leave policy, health care systems Social security systems (disability pensions, worker compensation)</td>
<td>Organization Employer-initiated programs/policies; company-level staffing practices Sickness benefits, modification of work arrangement and work climate at company level Rehabilitation and return-to-work programs</td>
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<tr>
<td>Work task</td>
<td>Work quality surveillance and improvement</td>
<td>Workload reduction for workers with stress-related symptoms</td>
<td>Job redesign for injured or diseased workers</td>
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<tr>
<td>Individual</td>
<td>Individual-based health promotion programs</td>
<td>Individual-based health screening, health and stress management</td>
<td>Individual-based assistance for injured or diseased workers</td>
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Table 2.  Selected welfare state characteristics by country

<table>
<thead>
<tr>
<th>Regime type</th>
<th>Country</th>
<th>Social protection</th>
<th>Collective power of workers</th>
<th>Labor participation rate</th>
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<tr>
<td></td>
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<td>Social expenditure (% of GDP)</td>
<td>Trade union density (%)</td>
<td>Collective bargaining (%)</td>
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Table 3. Average yearly working hours by country

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<tr>
<th>Regime type</th>
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<th>Annual working hours (hrs)</th>
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<td>C</td>
<td>Germany</td>
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<td>New Zealand</td>
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<td>Taiwan</td>
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</tr>
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Figure 1. Conceptual framework linking power relations, employment conditions, psychosocial work conditions and workers’ health labor market regulations and social welfare policies

Power relations
- Governments
- Political parties
- Corporations
- Unions
- Civil society (NGOs, community associations)

Employment conditions
- Labor market regulations (labor protection)
- Social welfare policies (income security, social services and benefits)

Psychosocial work conditions
- Working hours
- Job demands and other psychosocial work hazards

Workers’ health
- Early stress-related symptoms
- Stress-related injuries, diseases and disabilities