Chapter 16 Challenges of National and International Policies

Michael Marmot and Johannes Siegrist

16.1 Employment, Work and Health in a Globalized Economy: An Introductory Statement

In the United Nation's recently endorsed Sustainable Development Goals Agenda one of the important goals was defined as follows: "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (UN 2015). Other major international organizations and bodies support this ambitious aim in their declarations, such as the World Health Organization (WHO 2008, 2014) and the International Labour Organization (ILO 2013). A brief look at the current worldwide situation of employment and working conditions reveals how far we are still away from approaching this declared goal.

Today, roughly 195 million people of the world's population of employment age are unemployed. Any respective figure is of limited reliability, given betweencountry differences in defining *unemployment*, and given a large proportion of men and women who bypass registration for a number of reasons (Benach et al. 2007). Although unemployment, and in particular long-term unemployment, reduces the health and life expectancy of those exposed (Roelfs et al. 2011), additional threats are given by different forms of *precarious work*, such as involuntary part-time jobs, fixed-term contracts, temporary agency work, freelance, and some forms of self-employment. A major trait of these forms of precarious work is *job insecurity*, a condition that is clearly associated with reduced mental health and elevated cardio-vascular risk (Siegrist et al. 2015; Virtanen et al. 2013). Considering less developed

M. Marmot

J. Siegrist (🖂)

Institute of Health Equity, UCL (University College London), London, UK e-mail: m.marmot@ucl.ac.uk

Faculty of Medicine, University of Düsseldorf, Düsseldorf, Germany e-mail: Johannes.siegrist@med.uni-duesseldorf.de

[©] Springer International Publishing Switzerland 2016

J. Siegrist, M. Wahrendorf (eds.), *Work Stress and Health in a Globalized Economy*, Aligning Perspectives on Health, Safety and Well-Being, DOI 10.1007/978-3-319-32937-6_16

countries, the *working poor* define a huge challenge to economic and societal progress. For instance, according to ILO, "in 2005, 84% of workers in South Asia, 58% in South-East Asia, 47% in East Asia...did not earn enough to lift themselves and their families above the US\$2 a day per person poverty line" (ILO 2006, p. 1), with more women than men affected. A majority of those working in low-income countries are employed in the *informal economy*, often lacking any statutory regulation, protection against occupational hazards, and social security benefits (Labonté 2015). Even worse, despite international proscription, several millions of children are still exposed to *child labor*, and more than ten millions of adults are suffering from *forced or bonded labor*, specifically in Africa, South America, and the Pacific region (Benach et al. 2007).

More than half of the world's population is working in the formal or informal economy. Fatal and non-fatal *occupational accidents* and injuries make a large contribution to the overall burden of work-related morbidity and mortality. It was estimated that almost 1000 workers lose their life every day due to occupational accidents, most of them in low- or middle-income countries (Hämäläinen et al. 2006). *Exposure to* physical, chemical, and biological *hazards and physically strenuous work* has been substantially reduced in high-income countries as a result of technological progress, safety regulation and occupational health investments, but remains high in developing countries. As an example, in rapidly developing countries it was recently estimated that 125 million workers are still exposed to asbestos (WHO 2008), and the incidence of cancers caused by occupational exposures is likely to increase in most regions of the world (Hogstedt et al. 2007).

Even in highly industrialized and post-industrial societies, such as the member states of the European Union, adverse working conditions continue to be rather frequent (Eurofound 2015). For instance, every sixth worker is exposed to handle chemicals and every seventh to handle infectious materials, every fourth worker is exposed to vibrations, and more than 40% are working in painful, tiring positions, at least a quarter of time or more. Moreover, shift work and permanent noise at work affect more than 20% of the workforce (Eurofound 2015). Research on *shiftwork* documents elevated risks of cardiovascular disease and metabolic syndrome among shift workers (Härmä 2006; de Bacquer et al. 2009), and the rate of occupational injuries is particularly high among night shift workers (Bambra et al. 2008). A further health risk at work relates to long working hours. In Europe, every tenth male worker reports to work regularly more than 60 h per week. For special service occupations and professions, persons performing on-call jobs, freelancers, and several groups having 'modern,' less formalized, atypical jobs, it has become increasingly difficult to clearly distinguish work from non-work periods in their daily life. Long working hours were shown to increase the risk of stress-related disorders to a substantial extent, in particular depression (Virtanen et al. 2012), coronary heart disease and stroke (Kivimäki et al. 2015). The recent report of Eurofound extends the list of adverse working conditions by pointing to distinct psychosocial stressors, such as fear of losing one's job (16%), exposure to restructuring (24%), or poor prospects of career advancement (in midlife 63%) (Eurofound 2015). Nor, even in high

income countries, is work a way out of poverty. With the shift in income from labour to owners, low paid work has become more prevalent (Marmot 2015).

What is the *impact of economic globalization* on the development of relationships between employment, work and health? As mentioned earlier (see Chap. 1), this impact may be ambivalent. On one hand, economic growth goes along with the creation of new jobs, thus reducing unemployment and poverty in less developed countries. Moreover, with technological progress, industrialization and growth of the service sector, heavy physical work, as prevalent in agriculture, and hazardous jobs in 'old' industries are continuously replaced by modern equipment, automation, information and communication technology. On the other hand, we observe a high level of competition and work pressure in large parts of the workforce in developed and rapidly developing countries, often in combination with increased job insecurity and instability. A rise in non-standard work contracts, and a rapid expansion of flexible job arrangements result from globalized economic development. As a consequence, the threats of health-adverse psychosocial work environments are becoming more widespread and more visible, and they contribute to a growing burden of work-related diseases (Schnall et al. 2009; Siegrist et al. 2015).

This book is devoted to this latter aspect, with a special focus on the model of effort-reward imbalance at work. Distinct from several complementary concepts of a health-adverse psychosocial work environment that mainly address job task features, this model is concerned with the employment contract as a core element of employment relations (see Chap. 1). Employment relations represent the main linkages between individual workers and their employers, as they define rights and obligations, negotiate remuneration as well as conditions of employment, including job termination (Kalleberg 2009). In times of economic globalization, far-reaching and partly stressful changes in employment relationships occurred, as mentioned. 'Effort-reward imbalance' was designed as a theoretical approach towards identifying and assessing stressful aspects of employment contracts in this context, by focusing on conditions of 'high cost' and 'low gain' (see Chap. 1). More specifically, working people's low gains are defined at three levels, earnings, job promotion prospects including job security, and esteem or recognition related to achievement. As two of these levels of reward point to labour market conditions, this model links the micro-environment of organizations or enterprises with the macro-environment of labour-market regimes. To date, with an expanding economic globalization, these latter links are receiving special prominence, in particular as neo-liberal policies weaken the workers' needs for protection and security that are traditionally addressed by national legislation and welfare state regulations. In summary, the model of effort-reward imbalance at work seems well suited to capture stressful features of work and employment in the context of economic globalization.

It is of interest to note that this model of stressful work has been extensively applied in recent years by researchers interested in work and health in the context of economic globalization. This is the case for research conducted not only in Europe and North America (Chaps. 3, 4, 5, 6, and 7), but also in Japan (Chap. 8), Australia (Chap. 9), China (Chap. 10), and Latin America (Chap. 11). Importantly, by

assessing stressful work and employment in different parts of the world with comparable data a new source of information with relevance to national and international policies has become available. '*Effort-reward imbalance*' and '*job strain*' are the two models that were most often used so far in comparative international research on work stress-related health outcomes, but other concepts may complement this development in the future.

Monitoring between-country and within-country differences and trends of psychosocial stress at work has been recognized as one of several crucial prerequisites of designing targeted policies of prevention, as reflected, for instance, in the initiative of the European Commission to conduct regular European Working Conditions Surveys through Eurofound (2015). A related initiative was recently launched by OECD, aiming at providing guidelines on the measurement of quality of the work environment for all its member states. Descriptive evidence on inequalities in the quality of work and employment between and within countries is definitely important, but current scientific knowledge has more to offer to policy development, as the following short summary reveals.

16.2 Entry Points for Policies

16.2.1 The Challenge of Causality

In the twentieth century, occupational health and safety (OHS) has witnessed several successes where findings of epidemiological research contributed to the implementation of far-reaching preventive measures. The ban of asbestos and the recognition of asbestos-related occupational diseases provide an instructive example. Can we expect similar success with respect to current scientific knowledge on the impact of health-adverse psychosocial work environments on stress-related disorders? The first part of the answer to this question rests on judgements of causality. To help it may be useful to refer to Bradford Hill's *criteria* of demonstrating a *causal association* between exposure and health in the frame of epidemiological research. Importantly, these criteria include the strength and consistency of prospectively documented associations between exposure and health, the dose-response relationship of this association, the demonstration of biological pathways explaining the link, and the reduction of risk following removal of the exposure (Bradford Hill 1965).

Several chapters of this book have discussed these criteria with respect to the effort-reward imbalance model. For instance, in Chaps. 5 and 6, the strength and consistency of prospectively assessed relationships were documented for coronary heart disease and depression respectively. While the consistency of findings was considered satisfactory, in particular in case of depression, the strength of associations, as indicated in the elevation of odds ratios, in general was rather moderate, rarely exceeding a doubling of relative risk. However, this latter finding deserves

two important comments. First, even moderately elevated relative risks are relevant for policy if the prevalence of exposure is high and if the health problem under study occurs with sufficient frequency. Both aspects are clearly met, given the fact that, overall, every fifth working person is experiencing a critically high level of stressful work in terms of effort-reward imbalance (e.g., Wahrendorf et al. 2013), and as depression and coronary heart disease have been recognized as leading public health problems (Mathers and Loncar 2006). Second, as was also demonstrated in several chapters above, adverse psychosocial work exerts negative effects on a variety of stress-related health outcomes. Therefore, judging available evidence with regard to a single health outcome does not do justice to a rich body of available knowledge. Rather, a synthesis of evidence derived from a spectrum of health outcomes should inform policy. Two more causality criteria identified by Bradford Hill were addressed in this book. For instance, in Chap. 3 current knowledge of a dose-relationship was discussed in the frame of life course studies, and Chap. 7 reviewed research findings on psychobiological mechanisms linking exposure to stressful work with adverse health outcomes.

On balance, it seems that there is now sufficient scientific evidence available to recognize a *stressful psychosocial work environment*, defined and assessed according to leading theoretical models, as an *occupational risk factor*. This occupational risk factor deserves systematic monitoring and implementation of evidence based interventions as it can now be assessed in internationally comparable ways, and as its effects on health can be quantified, thus providing new explanations and predictions that are relevant for policy.

There is one last criterion in Bradford Hill's list that continues to challenge today's scientific community. It concerns the proof of reduced disease incidence following an elimination or substantial reduction of the exposure. As discussed in Chaps. 5 and 6, it seems almost impossible to conduct randomized controlled trials with adequate statistical power to demonstrate that a substantial reduction of psychosocial stress at work results in a clinically meaningful decrease in the incidence of disease. However, for the following reasons we maintain that this limitation does not invalidate our conclusion.

First, although trials meeting the highest level of scientific evidence may not be feasible, solid scientific results can be derived from carefully designed *intervention studies*. This has been demonstrated to an impressive extent in the previous chapter. In Chap. 15, criteria for high quality psychosocial workplace intervention studies were discussed, and several successful intervention studies were described, documenting significant effects on intermediate health indicators, such as reductions in blood pressure values or in burnout symptom scores.

Second, we can learn from '*natural experiments*' where distinct adverse or beneficial changes in work environments or employment conditions result in documented negative or positive health outcomes. Despite its methodological shortcomings, a rich body of relevant evidence is available, either evaluating negative aspects such as restructuring of enterprises, privatization of public organizations, or plant closures, or exploring positive aspects such as improving job security, work time control, or introducing new leadership principles. For instance, one such positive 'natural experiment' was observed in Northern Ireland where the Open University together with a trade union established courses for skill training and knowledge development of low skilled, low paid workers in large health care organizations (e.g., catering, cleaning), negotiating some free time for attending tutorials and preparing examinations. As a consequence, over 500 low paid employees earned certificates which improved their future job promotion prospects and their quality of work more (The Marmot Review 2010) (for more examples Cooper et al. 2012; see also Chaps. 14 and 15).

Third, adverse psychosocial work environments are embedded in broader socioeconomic structures. As mentioned, two reward dimensions within this work stress model, earnings and job security, connect the micro-environment of organizations or enterprises with the macro-environment of labour-market regimes. It is therefore important to consider the promises of conducting interventions at a more distal level of adverse work environments. Distinct *labour market policies* define one such distal level of interventions. As these policies vary substantially between countries with respect to their quality and comprehensiveness, cross-country comparisons may be used to explore whether well-developed labour policies are associated with a respective higher overall quality of work and employment and vice versa. The next section gives some preliminary research evidence along these lines, pointing to potential 'intervention' benefits of distinct worker-friendly labour policies.

16.2.2 Distal Entry Points

In two recent papers, an empirical approach towards studying distal interventions in terms of evaluating the quality of distinct national labour policies was developed. Both publications rely on a cross-country comparative longitudinal study, the Survey of Health, Aging and Retirement in Europe (SHARE), containing data from 13 to 16 countries respectively (Wahrendorf and Siegrist 2014; Lunau et al. 2015). The first paper uses SHARE data from the third wave (2008-2009), while data from the fourth wave (2010–2011) were analysed in the second paper that additionally included data from the English Longitudinal Study on Aging (ELSA) obtained during the same time period. Both studies collected interview data on a health-adverse psychosocial work environment, and they combined this data with information on two sets of labour market policy indicators, designed as proxy measures of national integration or compensation (protection) policies. Measures of the first type of policies reflect investments in continued education and in return-to work of disabled or unemployed people, whereas measures of the second type indicate the amount of generosity and accessibility of benefit programmes for workers in case of disability or unemployment. Although indicators of the two studies are not strictly identical, their results provide some comparative insights. Both publications tested their research hypothesis by means of a series of multilevel linear models, and they visualized relevant findings as scatter plots or as graphs derived from linear regression analysis.

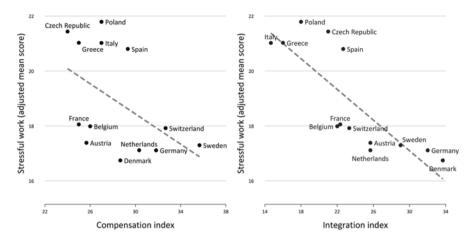


Fig. 16.1 Adjusted mean scores of stressful work among older male and female employees (N=11181) and policy indices. Mean scores of stressful work are adjusted for sex, age, retirement age, periods of disability, job absence due to disability, childhood circumstances (occupational position of main breadwinner, number of books, housing conditions and overcrowding) and labour market disadvantage (occupational position in main job, involuntary job loss (laid off and plant closure) and period of unemployment) (Source: Wahrendorf and Siegrist (2014))

Figure 16.1 displays the scatter plots of associations between a summary measure of stressful psychosocial work at national level, based on the aggregate mean score of the respective population, and an index of each country's amount of offering compensation and integration policies respectively. Stressful psychosocial work was measured by a sum score of 16 items representing abbreviated scales of the demand-control and effort-reward imbalance models and a self-evaluation of one's overall job career. The two 'integration' and 'compensation' indices were developed by OECD, reflecting the availability and quality of ten respective policy programs, evaluated by experts on a score ranging from 0 to 5 for several years. To interpret the results of the figure one should notice that scores of stressful work range from 0 (no stress) to 48 (high stress) and that policy indices range from 0 (poorest policy) to 50 (best policy) (Wahrendorf and Siegrist 2014). In case of the compensation index, associations are slightly less pronounced as we observe a group of countries with low compensation scores (low levels of system generosity) and low mean level of stressful work (Austria, France, Belgium) (R²=24.2). In contrast, an almost linear association is observed in case of the integration index where more pronounced integration policies are related to lower mean scores of stressful work ($R^2=66.5$).

The findings of this study support the notion that the average level of stressful work experienced by employees of a country varies to some extent according to the degree to which distinct national labour and social policies are implemented. In our case, this holds particularly true for integration policies which support the efforts of disabled, chronically ill and unemployed people to return to paid work. As the risks of disability, chronic illness and unemployment are unequally distributed among employed populations, leaving those in lower socioeconomic positions at higher risk, these policies have the potential of contributing to a reduction of the social gradient of adverse working conditions and their negative effects on the health of working people.

To address this latter problem in more detail the second paper analysed social gradients of stressful work and the potential impact of national labour policies on the steepness of these gradients. In this extended data set on older working persons from 16 European countries psychosocial stress at work was assessed by two summary measures reflecting the two work stress models of effort-reward imbalance and demand-control (control only), and the two sets of policy indicators were further distinguished by using two macro indicators of integrative and compensation (or protective) programmes. In the latter case, 'replacement rate' describes the expected financial support in the period directly after job loss as a percentage of the net income before job loss, whereas the OECD indicator of 'passive labour market policy' (PLMP) is calculated as percentage of GDP investments in unemployment benefits and in expenditures that compensate premature retirement of older workers with disadvantages on the labour market. In case of integrative policies, the first indicator represents the percentage of older workers who confirmed that they received training or education in the last 12 months ('lifelong learning'), and 'active labour market policies' (ALMP) refers to the amount of public expenditures to promote reintegration into work (percentage of GDP). Social inequality was measured by the respondents' highest educational degree, as defined by the International Standard Classification of Education (ISCED). This measure explicitly considers national variations in educational systems, and thus renders it accessible for crosscountry comparisons (Lunau et al. 2015).

Three results of this study deserve attention. First, as expected, consistent educational gradients of stressful work were observed in a majority of countries, with higher levels of stress among those with lower education. Second, when the predicted educational differences in work stress per country (low vs. high education) were plotted against the two indicators of integrative policies, 'lifelong learning' and 'ALMP', linear trends similar to those depicted in Fig. 16.1 were observed. Sweden, Denmark, Switzerland, the Netherlands and Belgium were countries where differences in work stress between low and high educated workers were relatively small. At the same time these countries exhibited a high percentage of older workers with training experiences, and their ALMP expenditures were high. Conversely, large educational differences in stressful work were found in Eastern and Southern European countries, where participation in lifelong learning and ALMP expenditures were modest (Lunau et al. 2015; results not shown). Third, when testing in multilevel models whether the strength of associations between educational level and work stress varies according to the extent of implementation of policies, the main results visualized in Fig. 16.2 show that with regard to effort-reward imbalance this is the case for three out of four policy indicators, whereas in case of low control this variation is obvious with regard to lifelong learning only (Lunau et al. 2015).

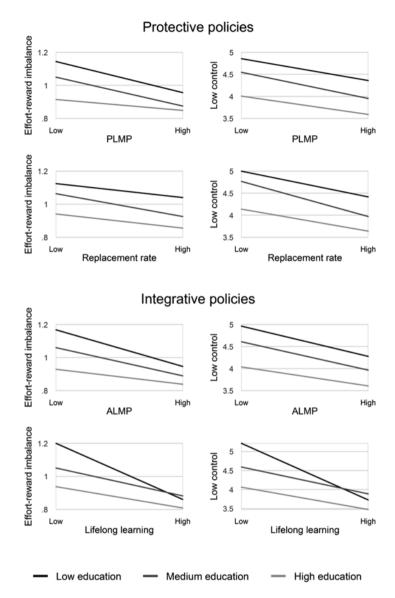


Fig. 16.2 Predicted levels of work stress by education at different levels of macro indicators. Expenditures into active (ALMP) and passive labour market policies (PLMP) are weighted by unemployment rate (Source: Lunau et al. (2015))

Although these findings should be interpreted with caution they indicate that the *burden of disadvantageous work*, as measured by the effort-reward ratio, is *lower among less educated people* in countries with *well developed integration policies* than in countries with poor policies. Moreover, disparities between educational groups are smaller. This suggests that specific active labor market policies target the

needs of less privileged older workers particularly well. The benefits of measures that support return to work following disease or disability, and of measures that enable workers to change or modify their job following retraining and education may become visible in lower mean levels of stressful work. Given the negative consequences of stressful work on health, the results of this study can direct policy attempts towards reducing social inequalities in health of older workers (Lunau et al. 2015).

In conclusion, current scientific evidence derived from more than two decades of international research on stressful working and employment conditions and their effects on health, and more specifically on social inequalities in health, has reached a level of consistency and robustness that justifies its use as a knowledge base informing and directing policy efforts through different entry points. These entry points concern the implementation and improvement of routine monitoring systems, the investments in human capital to strengthen occupational health and safety services, the pressures and incentives to employers and other stakeholders to promote healthy work within companies and organizations, and the development of active labour market policies at national and international levels that reduce the burden of stressful work and its adverse effects on health. The final section describes these entry points as calls for action.

16.3 What Should Be Done

To ensure that workplaces are safe and to protect workers from occupational hazards and diseases is a key responsibility of employers. These duties and responsibilities need to be controlled by authorities, based on national laws and regulations, and OHS services have been established to support employees and employees in their efforts to prevent work-related risk and to promote healthy work. Legislation and regulations vary considerably between countries, despite some binding international conventions, most importantly those on fundamental rights of workers declared by the International Labour Organization (ILO) (2013). To date, many countries in less developed parts of the world still lack basic safety, health and social protection measures of working people, they are deprived of occupational health and safety services, and their social security system fails to meet even basic needs of working people and their families (WHO 2008; Benach et al. 2007). Moreover, substantial variations in the availability and quality of worksite risk prevention and health promotion are observed in economically advanced societies, for instance between eastern and western European countries, and between northern and southern European nations (WHO 2014). Importantly, there are also drawbacks in countries with well-developed welfare regimes. With the diffusion of neo-liberal policies stimulated by economic globalization the impact of national legislation, of social protection and active labor market programs has been weakened, in conjunction with a cutback in government spending and an increasing privatization of public services, thus reducing the governments' policy capacity (Labonté 2015). The great

recession starting in 2008 has exacerbated these developments in some high income countries, urging them to adopt austerity programs with their negative consequences for the health and welfare of vulnerable groups (Stuckler et al. 2009).

Against this background, it has become increasingly difficult to achieve progress in negotiations on fair employment and working conditions between employers, trade unions and governments, given their restriction to the national context. In low income countries, with large proportions of the work force in informal employment, trade unions may not be potent forces for improving working conditions. The Self Employed Womens Association (SEWA) in India is a notable exception (Marmot 2015). In countries such as the US and UK, decline in trade union membership, particularly in the private sector, has led to a shift in the balance of power to employers.

With the liberalization of capital, trade and labor markets and with increasing economic power of transnational corporations the regulatory impact exerted by national governments has been substantially diminished. Therefore, efforts are needed towards establishing effective supranational regulation to ensure basic human rights at work internationally. Several such initiatives have been proposed. As a first, particularly important activity, the ILO's 'Social Protection Floor Initiative' must be mentioned (ILO 2013). Although several UN agencies, development banks, and governments support this initiative, there is still a long way to go until all member states will adopt it, given the absence of formal sanctions. Amongst others, this initiative recommends the introduction of minimal wages, of health- and unemployment- insurance, and of reliable pension systems, thus extending formal employment contracts at the expense of the informal sector. Moreover, national labor market programs are proposed to reduce youth unemployment and adult longterm unemployment. Transnational corporations are asked to apply the same employment standards for their employees in high-income and low-income countries, and to refrain from relocating their production sites to countries with minimally regulated workforce. There is now some evidence that the World Trade Organization (WTO) recognizes the importance of occupational health and safety standards and related social protection measures in transnational trade and investment treaties (Labonté 2015).

In addition to the initiatives of ILO and WTO the *World Health Organization* (WHO) has fostered a global movement to promote health equity, including work-related health, based on the Commission on Social Determinants of Health Final Report (WHO 2008). *Core recommendations* of this influential report are that:

- "Full and fair employment and decent work be made a shared objective of international institutions and a central part of national policy agendas and development strategies;
- National governments develop and implement economic and social policies that provide secure work and a living wage that takes into account the real and current cost of living for health;
- Public capacity be strengthened to implement regulator mechanisms to promote and enforce fair employment and decent work standards for all workers;
- Governments reduce insecurity among people in precarious work arrangements;

Occupational Health and Safety (OHS) policy and programmes be applied to all workers ...and include work-related stressors and behaviours as well as exposure to material hazards" (WHO 2008, p. 76ff.).

More recently, these recommendations were reinforced and extended by a Task Group Report on Employment and Working Conditions that was developed, not least with our own input, in the frame of the 'Review of social determinants and the health divide in the WHO European Region' (Siegrist et al. 2015). With regard to the supranational level, it was emphasized that coordinated international efforts are required to reduce the impact of neo-liberal policies on labor market standards, wage policies, and income distribution, and that the regulatory influence of international organizations should be enforced in dealing with marked-based financial and economic crises.

The Commission on Social Determinants of Health called for health equity in all policies. All policies should be formulated with regard to the likely impact on health equity. Labour market policies, just discussed, are highly relevant. So, too a recent report from the *International Monetary Found* that recommends *stronger redistribution of income* via progressive taxation. Based on an analysis of economic growth in 153 countries the report concludes that such redistribution measures reduce income inequality which in turn stimulates economic growth (Ostry et al. 2014). An effect of such income redistribution is to improve the income of the worst off which, in turn, will have the likely effect of promoting health equity. A key recommendation of the Marmot Review of Health Inequalities in England, Fair Society Healthy Lives, was that everyone in the population should have the minimum income necessary for a healthy life (Marmot 2010).

Other recommendations of this recent WHO European Report are directed at the national level. For instance, work and employment-related material and psychosocial adversities should be monitored in a systematic and regular way, based on national legislation, using scientifically approved tools. Their health impact should be assessed in collaboration with occupational health and safety professionals, and measures of improvement should be implemented, using an established implementation cycle (Leka and Jain 2010; Siegrist et al. 2015). Furthermore, recognizing the evidence of persistent social inequalities in the quality of work and the burden of work-related diseases, investments into primary and secondary prevention at work should be prioritized according to need, with special emphasis on most vulnerable occupational groups. As lack of control and reward at work were shown to be critical determinants of a variety of stress-related disorders and to be more prevalent among lower occupational status groups, focusing interventions around these dimensions and targeting less privileged groups within the workforce are high priorities. Last, but not least, the solid body of currently available knowledge needs to be disseminated through professional declarations by scientific networks, public media campaigns and related channels to motivate responsible stakeholders, political movements, civil society activities, and the broader public to call for action and to develop targeted initiatives, with a hope that fair and decent work, and specifically justice of exchange at work, are moved up on the political agenda.

To conclude, within a globalized economy the reduction of poor quality of employment and work and the reduction of their adverse effects on workers' health provide substantial challenges to national and international occupational policies. But over the past two or three decades we have witnessed a substantial increase of scientific evidence on causes and consequences of unhealthy work, and enhanced policy efforts to tackle these challenges are emerging at international, national, and local levels. Therefore, there is hope that these efforts will ultimately result in a sizeable reduction of health inequalities and in further growth of sustainable and healthy work.

References

- Bambra, C. L., Whitehead, M. M., Sowden, A. J., Akers, J., & Petticrew, M. P. (2008). Shifting schedules: The health effects of reorganizing shift work. *American Journal of Preventive Medicine*, 34, 427–434.
- Benach, J., Muntaner, C., & Santana, V. (2007). Employment conditions and health inequalities. Final report to the WHO Commission on Social Determinants of Health (CSDH). Geneva: WHO.
- Bradford Hill, A. (1965). The environment and disease: Association or causation? *Journal of the Royal Society of Medicine*, *58*, 295–300.
- Cooper, C. L., Pandey, A., & Quick, J. C. (Eds.). (2012). *Downsizing. Is less still more?* Cambridge: Cambridge University Press.
- De Bacquer, D., van Risseghem, M., Clays, E., Kittel, F., De Backer, G., & Braeckman, L. (2009). Rotating shift work and the metabolic syndrome: A prospective study. *International Journal of Epidemiology*, 38, 848–854.
- Eurofound. (2015). *First findings: Sixth European working conditions survey*. Dublin: European Observatory of Working Life.
- Hämäläinen, P., Takala, J., & Saarela, K. L. (2006). Global estimates of occupational accidents. Safety Science, 44, 137–156.
- Härmä, M. (2006). Workhours in relation to work stress, recovery and health. Scandinavian Journal of Work, Environment and Health, 32, 502–514.
- Hogstedt, C., Wegman, D., & Kjellstrom, T. (2007). The consequences of economic globalization on working conditions, labor relations, and worker's health. In I. Kawachi & S. Wamala (Eds.), *Globalization and health* (pp. 138–157). Oxford: Oxford University Press.
- International Labour Organization. (2006). *Realizing decent work in Asia*. Geneva: International Labour Office (www.ilo.org/public/English/standards/relm/rggmeet/asia.htm).
- International Labour Organization. (2013). World of work report. Geneva: ILO.
- Kalleberg, A. L. (2009). Precarious work, insecure workers: Employment relations in transition. American Sociological Review, 74, 1–22.
- Kivimäki, M., Jokela, M., Nyberg, S., Singh-Manoux, A., Fransson, E., Alfredsson, L., et al. (2015). Long working hours and risk of coronary heart disease and stroke: A meta-analysis of 603 838 individuals. *The Lancet*, 386, 1739–1746.
- Labonté, R. (2015). Globalization and health. International encyclopedia of the social & behavioral sciences (2nd ed.). New York: Elsevier.
- Leka, S., & Jain, A. (2010). *Health impact of psychosocial hazards at work: An overview*. Geneva: World Health Organization.
- Lunau, T., Siegrist, J., Dragano, N., & Wahrendorf, M. (2015). The association between education and work stress: Does the policy context matter? *PloS One*, 10(3), e0121573.

- Marmot, M. (2010). Fair society, healthy lives. The Marmot Review. London: Institute of Health Equity.
- Marmot, M. (2015). *The health gap. The challenge of an unequal world.* London: Bloomsbury Publishing.
- Mathers, C. D., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Medicine*, *3*(11), e.442.
- Ostry, J., Berg, A., & Tsangarides, C. (2014) *Redistribution, inequality, and growth.* IMF Staff Discussion Note 14(2), 1–30.
- Roelfs, D. J., Shor, E., Davidson, K. W., & Schwartz, J. E. (2011). Losing life and livelihood: A systematic review and meta-analysis of unemployment and all-cause mortality. *Social Science* & *Medicine*, 72, 840–854.
- Schnall, P., Dobson, M., & Rosskam, E. (Eds.). (2009). Unhealthy work: Causes, consequences, cures. New York: Baywood.
- Siegrist, J., Rosskam, E., & Leka, S. (Eds.). (2015). Review of social determinants of health and the health divide in the WHO European region: Employment and working conditions including occupation, unemployment and migrant workers. Copenhagen: World Health Organization, Regional Office for Europe.
- Stuckler, D., Basu, S., Suhrcke, M., Coutts, A., & McKee, M. (2009). The public health effect of economic crises and alternative policy responses in Europe: An empirical analysis. *The Lancet*, 374, 315–323.
- United Nations. (2015) Sustainable development goals. https://sustainabledevelopment.un.org. Accessed 4 Jan 2016.
- Virtanen, M., Stansfeld, S. A., Fuhrer, R., et al. (2012). Overtime work as a predictor of major depressive episode: A 5-year follow-up of the Whitehall II study. *PloS One*, 7(1), e30719.
- Virtanen, M., Heikkila, K., Jokela, M., et al. (2013). Perceived job insecurity as a risk factor for incident coronary heart disease: Systematic review and meta-analysis. *British Medical Journal*, 347, f4746.
- Wahrendorf, M., & Siegrist, J. (2014). Proximal and distal determinants of stressful work: Conceptual framework and analysis of retrospective European data. *BMC Public Health*, 14, 849.
- Wahrendorf, M., Dragano, N., & Siegrist, J. (2013). Social position, work stress, and retirement intentions: A study with older employees from 11 European countries. *European Sociological Review*, 29, 792–802.
- World Health Organization. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. Final report of the Commission on Social Determinants of Health. Geneva: WHO.
- World Health Organization. (2014). *Review of social determinants and the health divide in the WHO European region: Final report* (2nd ed.). Copenhagen: WHO, Regional Office for Europe.