Economic crisis and mental health and wellbeing

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"Impact of economic crises on mental health"

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SUMMARY

Analyses of the relationships between economic recessions and consequent unemployment find, in general, that economic recessions either have no impact on or reduce all-cause mortality, including infant mortality. One analysis, undertaken in the European Union, controlled for lifestyle factors and found that economic downturns in the European Union increased overall mortality. Nevertheless, what is clear is that economic recessions increase deaths from suicide and alcohol use disorders, sometimes markedly so, but, often, with the number of increased deaths counterbalanced by decreases in deaths from motor vehicle fatalities, simply due to less driving.

Investments in social protection and active labour market programmes can completely mitigate the relationship between economic recession and increased suicide mortality. Alcohol policy, and particularly policy that increases the price of alcohol, reduces deaths from alcohol use disorders, including deaths from episodic heavy drinking, and reduces unemployment. Evidence for the impact of work place policies is, surprisingly, rather limited, and what is available demonstrates limited impact. Nevertheless, stress management interventions and psychosocial interventions for alcohol use disorders can improve health and wellbeing, with both workplace and social net economic benefit.

Chronic diseases feature high in terms of likelihood and severity of global economic impact. Behavioural and mental disorders dominate the ill-health and premature death of chronic diseases. The impact of the present economic crisis on health presents an opportunity to strengthen policies that would not only mitigate the impact of the recession on deaths from suicides and alcohol use disorders, but reduce the global health and economic burden presented by such mental and behavioural disorders in times of economic good and bad.

Governments could consider reorienting their budgets to protect their populations now and in the future by budgeting for measures that keep people employed, helping those who lose their jobs with the negative effects of unemployment, and enabling unemployed people to regain work quickly. They could consider also consider strengthening their alcohol policies, in particular by raising the price of alcohol, or introducing a minimum price of alcohol.

Business and employers could consider implementing stress management programmes and brief advice programmes for employees with hazardous and harmful alcohol consumption, which both improve mental wellbeing and health of employees and bring economic savings to work places.

1 INTRODUCTION

The financial crisis which started in 2007 has been described by some as the worst financial crisis since the Great Depression of the 1930s, contributing to the failure of key businesses, declines in consumer wealth and significant declines in economic activity [1].The OECD-wide unemployment rate has increased at an unprecedented pace during the economic crisis [2]. In September 2009, there were 15.7 million more unemployed people in the OECD area compared with the end of 2007. Unemployment is projected to continue to rise until the end of 2010, albeit at a diminishing pace. By then, the number of unemployed people in OECD countries will be almost 21 million higher than at the end of 2007. It may not be until 2011 that unemployment begins to fall in the Euro area.

Marshall, writing of economic crises in 1924, noted "The commercial storm leaves its path strewn with ruin. When it is over there is calm, but a dull heavy calm" [3]. It might seem obvious that economic recession and unemployment would have a negative impact on health and well-being. But, at first sight, a reading of the literature might suggest otherwise.

For example, an analysis of life and death during the great depression found that overall mortality decreased for almost all ages and life expectancy increased in the US during the four years 1930-1933 [4]. However, this was also the time of prohibition of alcohol, when alcohol consumption [5] and alcohol-related harm [6] fell.

Other analyses also suggest that economic downturns do not have negative effects on health, a procyclical fluctuation[1] [7], with suicides an important exception [8]. However, when potentially confounding factors, such as lifestyle risk factors are controlled, then, contrary to other research, strong positive relationships are observed between adverse economic conditions and mortality. Further, data from the experience of Russia has found very powerful relationships between economic crises and alcohol-related deaths [10].

This paper reviews the evidence for a relationship between economic crises and health and concludes that economic crises and consequent unemployment increase the risk of suicide and deaths from alcohol use disorders.

The paper continues to review the evidence of what can be done to mitigate the impact of the economic recession and finds evidence that social protection and active labour market programmes reduce the effect of recession on suicides, and that work place programmes can reduce the risk of negative outcomes on mental health and alcohol use disorders and can promote health and well-being.

2 METHOD

PubMed, Google Scholar and the Cochrane library were searched to the end of 2009 to identify publications on:

1. Economic crisis and economic recession on mental well-being, mental disorders, anxiety disorders, depression and suicide;

[1] In business cycle theory and finance, any economic quantity that is positively correlated with the overall state of the economy is said to be 'procyclical'. That is, any quantity that tends to increase when the overall economy is growing is classified as 'procyclical'. Quantities that tend to increase when the overall economy is slowing down are classified as 'countercyclical'.

2. Economic crisis and economic recession on alcohol consumption, alcohol use disorders and alcohol-related outcomes, including intentional and unintentional injuries and cardiovascular diseases;
3. Impact of workplace and labour policy programmes on alleviating and reducing mental well-being, mental disorders, anxiety disorders, depression and suicide; and
4. Impact of workplace and labour policy programmes on alleviating alcohol use disorders and alcohol-related accidents and injuries.

3 THE IMPACT OF ECONOMIC RECESSIONS ON HEALTH

3.1 The great depression of the 1930s

Tapia Granados & Diex Roux used historical life expectancy and mortality data to examine associations of economic growth with population health for the period 1920–1940 in the United States [4]. They found that life expectancy generally increased throughout the period of study (Fig. 1). However, it oscillated substantially throughout the 1920s and 1930s with important drops in 1923, 1926, 1928–1929, and 1936 coinciding with strong economic expansions. During the Great Depression, life expectancy rose from 57.1 years in 1929 to 63.3 years in 1933. The rates of infant mortality and age-specific mortality fro all age groups under 20 years generally declined during the 1920s and 19030s. Peaks in infant mortality and mortality for all age groups under 20 years occurred in the years 1923, 1926, 1928-1929 and 1934-1936, years which coincided with strong economic growth.

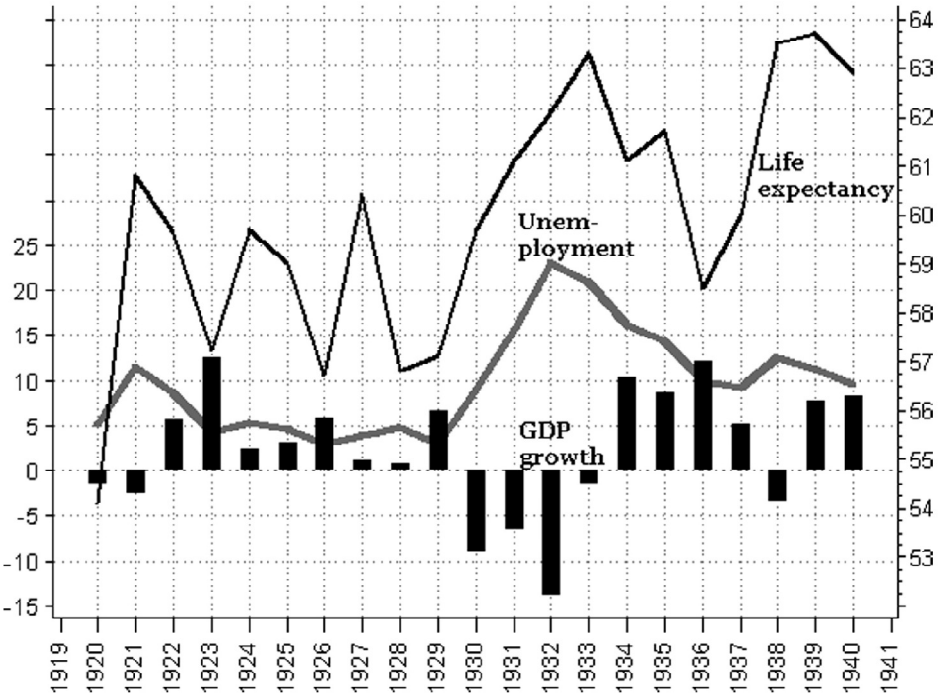

Figure 1 Life expectancy at birth (years, right vertical axis), unemployment (%, left vertical axis) and annual growth of real GDP (%, left vertical axis). Source: [4].

Of six causes of death that compose about two-thirds of total mortality in the 1930s, only suicides increased during the Great Depression, Figure 2. Suicide mortality peaked with unemployment, in the most recessionary years, 1921, 1932, and 1938. Cars became increasingly common during the 1920s, and traffic-related mortality increased markedly until 1931, but dropped sharply in 1932, the worst year of the depression. It rose again during the economic expansion of the mid-1930s and plummeted in the recession of 1938.

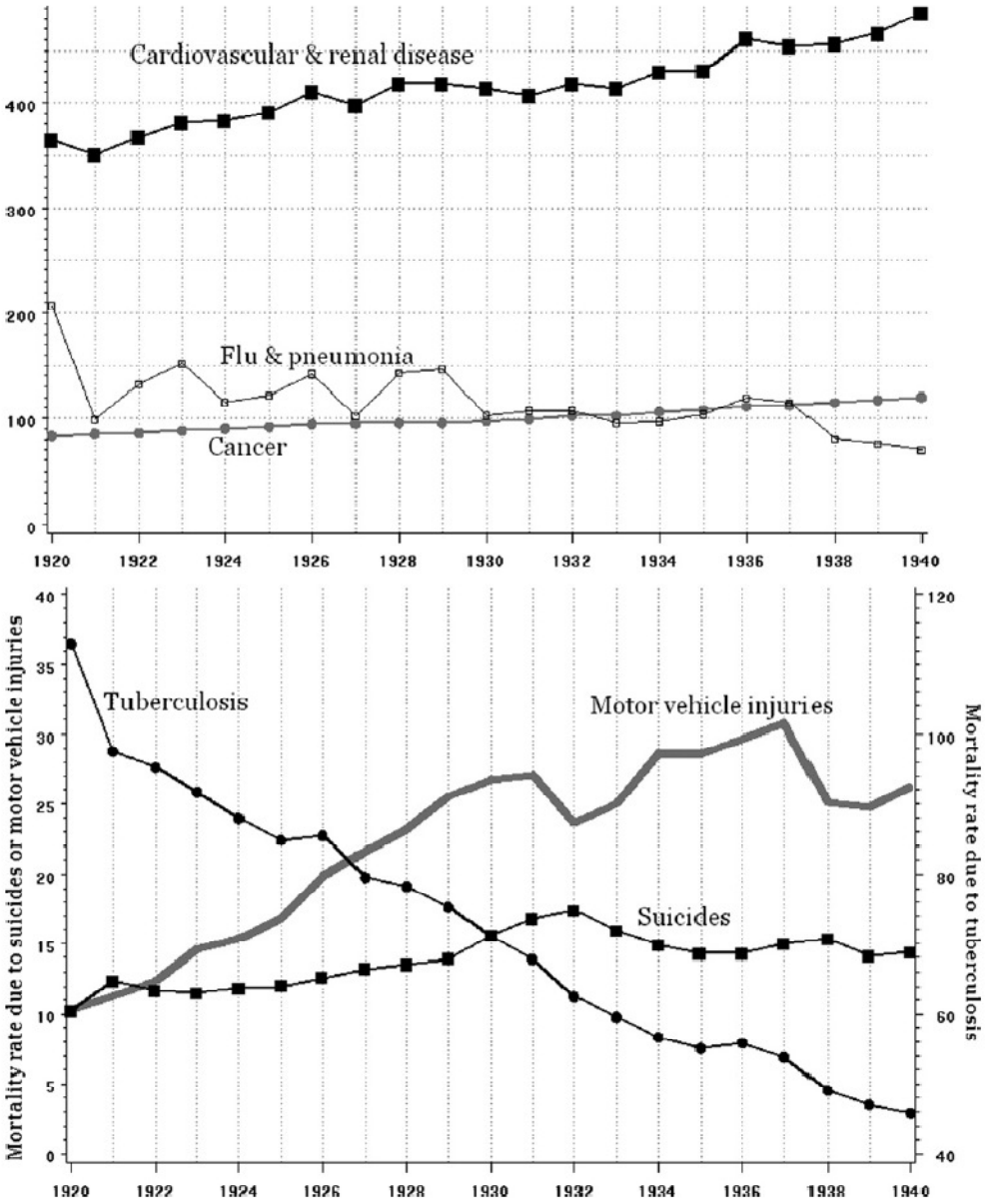

Figure 2 Crude mortality rate (per 100,000 population) for selected major causes of death. Source: [4].

During this time, changes in mortality are likely to be confounded by changes in alcohol consumption, which were not accounted in the analysis of Tapia Granados & Diex Rouz [4]. During the period 1919 to 1933, the sale, manufacture, and transportation of alcohol for consumption were banned nationally as mandated in the Eighteenth Amendment to the United States Constitution. Alcohol consumption fell sharply at the beginning of Prohibition, to approximately 30 percent of its pre-Prohibition level [5]. During the next several years, however, alcohol consumption increased to

about 60-70 percent of its pre-prohibition level. At the same time, drunkenness arrests [11] and liver cirrhosis deaths [6] fell by between 10% and 20%.

3.2 Russia case study

Russia provides a very interesting, if not dramatic, case study of the impact of economic crises on mortality, particularly deaths from alcohol-related diseases. For example, Figure 3 compares the all-cause mortality rates (averaging male and female) at ages 15–54 years in Russia and western Europe since 1980, with Figure 4 showing that alcohol was responsible for about three-quarters of all male Russian deaths at ages 15–54 years and about half of all female Russian deaths at these ages during the 1990s [10].

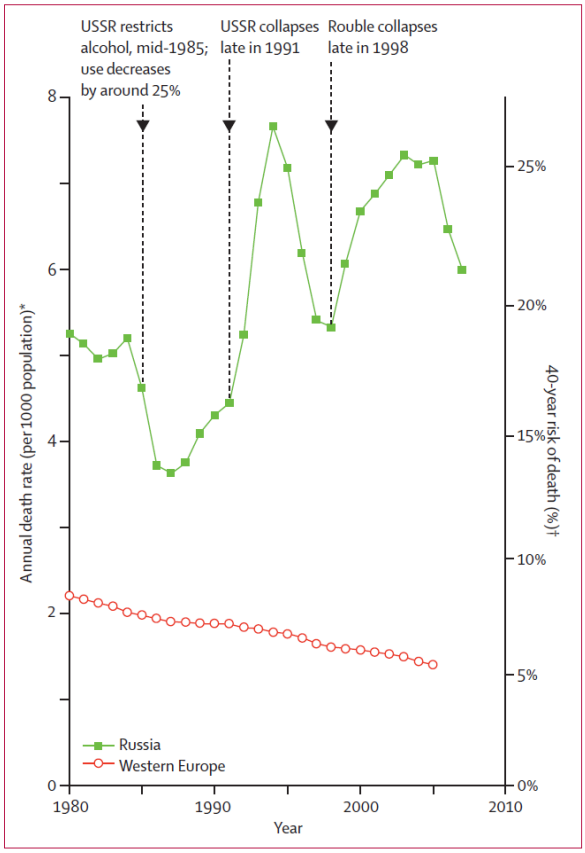

Figure 3 Mortality from all causes and 40-year risks of death in men and women aged 15–54 years in Russia (1980–2007) and western Europe (to 2005) USSR=Union of Soviet Socialist Republics. Source: [10].

Alcohol consumption had been increasing slowly for many years, then decreased suddenly in mid-1985 as part of the Gorbachev campaign, was minimal during 1986–87 at about three-quarters of pre-1985 levels, increased (slowly, then steeply), and was at a maximum in 1994. During 1992–94, Russian industrial output halved, accompanied by hyperinflation; the rouble then stabilised (1995–98), collapsed (1998–99), and stabilised again.

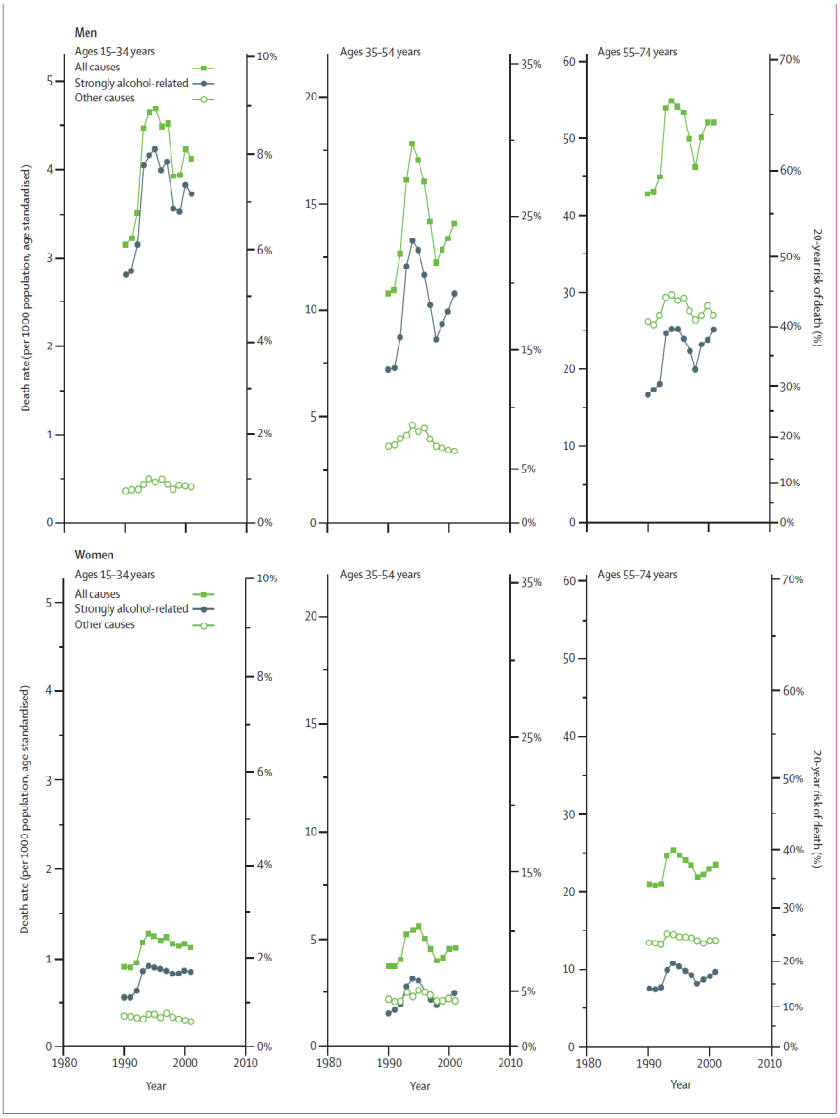

Figure 4 Mortality from all causes, from causes strongly related to alcohol, and from other causes in the Altay and Tomsk regions of Russia, 1990–2001. Source: [10].

3.3 East Asia

The Asian economic crisis of 1997–1998 was associated with a rise in suicide mortality in some, but not all affected countries [12-14]. Compared to 1997, there were 10,400 excess suicides in 1998 in Japan, Hong Kong and Korea. Some of the crisis's impact on male suicides appeared to be mediated through rises in the levels of unemployment. These patterns were observed in both sexes but were more marked in men. The rises in suicide mortality between 1997 and 1998 appeared to be more prominent in working-age men (15– 64 year olds) than in retired men (65+ year olds). The crisis did not appear to affect trends in suicide rates in Taiwan and Singapore, where the economic crisis had a smaller impact on GDP and unemployment.

For those countries where an adverse effect of the economic crisis on suicide was found, the impact on suicide rates in men tended to be more prominent than in women, a finding compatible to that seen during the Russian economic crises [15]. However, in Russia the gender difference was in part due to the lower contribution of alcohol consumption to female compared to male suicides.

Available data in East and Southeast Asia indicated that mean alcohol consumption did not increase during the economic crisis [16] and therefore is unlikely to have made an important contribution to the increases in suicide mortality. In contrast, increases in unemployment caused by the economic crisis were reported to be specifically related to male rather than female suicides when Japan fell into deep recession [17]. In Japan, Hong Kong and Korea, working-age men appeared more likely to be affected by the economic crisis than retired men. Similarly, rises in suicide mortality during the economic crisis in the early 1990s in Russia were more prominent in young and middle-aged adults than in the elderly [18].

3.4 US state analyses

Ruhm [8] analyzed data from 50 US states and the District of Columbia over the 1972–1991 time period, relating unemployment to mortality. The analysis found that joblessness was negatively and statistically significantly correlated with total mortality. A one percentage point increase in the state unemployment rate decreased the predicted death rate by approximately 0.5 percent. A one percentage point rise in state unemployment lowered the predicted death rate of 20–44 year olds by 2.0 percent, had no effect on persons aged 45–64 years, and reduced the expected fatalities of those aged 65 years plus by less than 0.3 percent. One reason the macroeconomic conditions had such different effects across age groups was that state mean personal income was strongly positively correlated with the expected mortality of 20–44 year olds—an extra $1000 increases predicted fatalities by 5.2 percent—but not for the two older groups.

State unemployment rates were also negatively and significantly related to eight of the ten specific causes of death studied. A one point increase in unemployment reduced predicted mortality from motor vehicle crashes, other accidents, and homicides by 3.0, 1.6, and 1.9 percent, respectively, whereas deaths from cardiovascular disease and influenza/pneumonia were expected to fall just 0.5 and 0.7 percent. Suicides were predicted to rise 1.3 per cent.

Mortality rates were not controlled for lifestyle factors, but separate analyses were undertaken of the relationship between unemployment and lifestyle factors. A one percentage point increase in the state unemployment rate reduced the predicted number of current smokers by 0.3 percentage points. By contrast, the unemployment coefficient was positive, although not significant, for alcohol use. A one percentage point increase in unemployment was associated with a statistically significant .016 reduction in average BMI, corresponding to a 0.6 percent decline at the sample average. A one percentage point increase in state unemployment is associated with a statistically significant 0.6 percentage point increase in some exercise and a 0.5 point rise in regular physical activity, corresponding to roughly a 1 percent elevation in each at the sample means. The same growth in joblessness boosted the predicted consumption of fruits and vegetables by a statistically insignificant .02 servings per day and lowered the daily intake of dietary fat by a statistically significant .71 grams. The latter corresponds to a 2 percent decrease.

3.5 UK analyses

Adda et al [19] used information on more than half a million individuals sampled over a 25-year period in three different cross-sectional surveys in the UK to uncover causal effects of permanent income shocks on health during the 1980s and 1990s, and found similar results to the US analyses. A 1% increase in income led to about 0.7 to 1 more deaths per 100,000 persons among the prime aged population in any given year. There were no relationships between income and a range of self-reported health outcomes, except for mental health, where a 1% increase in income improved

mental health by 0.4%. Income changes impacted on self-reported changes in health behaviour, but only by small amounts, with a 1% increase in income associated with a 0.08% increase in the number of cigarettes smoked, and a 0.006% increase in the quantity of alcohol consumed.

3.6 OECD countries

Gerdtham & Ruhm applied similar analyses for 23 OECD countries over the 1960–1997 period [7]. A 1% fall in unemployment was estimated to raise mortality by 0.4%. A one point fall in the standardized unemployment rate was estimated to raise deaths from cardiovascular disease, influenza/pneumonia, or liver disease by a statistically significant 0.4, 1.1, and 1.8%, with small (and insignificant) growth predicted for infant deaths. A one point decline in unemployment was predicted to raise vehicle deaths by 2.1% and mortality from other accidental causes by 0.8% Suicides were estimated to fall by a statistically insignificant 0.4% and homicides by a significant 1.1%.

3.7 Why might cyclical upturns worsen health?

A number of reasons have been proposed why health might worsen with economic upturns [20]. First, non-market ''leisure'' time decreases, making it more costly for individuals to undertake time-intensive health-producing activities such as physical activity. Data from the Behavioral Risk Factor Surveillance System (BRFSS) suggests that a strengthening economy is associated with increased smoking and obesity, reduced physical activity, and worse diet [21]. Second, health may be an input into the production of goods and services. Most obviously, hazardous working conditions, the physical exertion of employment, and job-related stress could have negative effects, particularly when job hours are extended during short-lasting economic expansions [22]. Cyclically sensitive sectors, such as construction, also have high accident rates and some joint outcomes of economic activity (like pollution) present health risks. Third, increases in permanent income are expected to have a positive effect on most aspects of health, but income growth, particularly when transitory or occurring in already wealthy countries, may nevertheless be associated with higher risks of some sources of death. For example, individuals drive more when times are good and may be more likely to do so after consuming alcohol, with the result that vehicle fatalities (and possibly other external causes of death) rise when the economy strengthens [23].

Other mechanisms might produce short-term effects by precipitating death among persons with underlying (sometimes asymptomatic) chronic disease, and increasing rates of unintentional injuries. Economic expansions have been linked to increases in smoking and alcohol consumption, reductions in sleep, and increases in work stress related to overtime and faster and more strenuous labour, all of which are associated with adverse health outcomes and mortality among healthy persons and among persons with underlying chronic disease [24]. Other mechanisms involving increases in social isolation, lack of home care, and decreases in social support during economic expansions as a result of greater employment, increased work demands, and work-related migration could also play a role [24].

3.8 Confounding and accidents

In recessions, the rate of reported workplace accidents is lower than it is in booms [8]. Boone & van Ours studying data from 16 OECD countries distinguished between two possible explanations for this finding: workplace safety and reporting behaviour [25].

The workplace safety explanation predicts that the unemployment rate is negatively related to workplace accidents because effort is negatively related to unemployment and high effort makes accidents more likely. Furthermore, it predicts that working hours are positively related to workplace accidents because working longer increases the probability of an accident to occur. Also, the change in employment is positively related to workplace accidents since an increase in employment coincides with a lot of new hirings while a decrease in employment is related to few new hirings.

The 'reporting' explanation predicts that the rate of unemployment is negatively related to the rate of workplace accidents. Workers fear that the chance that they are fired goes up next time the firm needs to shed labour if they report an accident. If unemployment is high, it will take a long time before another job is found and hence the worker prefers not to report an accident.

Another distinction between the two alternative explanations has to do with fatal accidents. If cycles in workplace safety drive the cycles in workplace accidents this should also be the case for fatal accidents. If reporting behaviour of workers is relevant, then fatal accidents should not be affected by the unemployment rate or changes in the unemployment rate, because fatal accidents are always reported.

Based on information from OECD countries, Boone & van Ours find that workplace accidents are inversely related to the unemployment rate, while working hours and changes in employment rate do not affect the accident rate [25]. On the other hand, fatal accident rates are not related to labour market conditions in terms of unemployment. When the fatal workplace accident rate is included as an explanatory variable, a positive and significant effect is found for unemployment on nonfatal accidents. Fatal accidents turn out to be related to the employment shares of the manufacturing and construction industries. Thus, fatal workplace accidents are an indicator of economy wide workplace safety. Thus, the variation in non-fatal workplace accidents is related to both economy wide workplace safety (through employment shares of industries) and reporting behaviour (as picked up by the unemployment rate). Further, the higher the unemployment benefits the smaller the effect of unemployment on non-fatal workplace accidents, which can be interpreted as evidence of the relevance of reporting behaviour. From all this, Boone & van Ours concluded that labour market conditions influence statistical information on workplace accidents through reporting behaviour of workers. If unemployment is high workers are less likely to report about workplace accidents than they are in situations of low unemployment.

3.9 Confounding and Alcohol

It has been suggested that alcohol use disorders vary procyclically, implying that income effects dominate any drinking patterns related to the opportunity cost of time or the psychological stress of recessions [26]. However, those inferences have been largely based on aggregate measures of consumption volume. For the US, Dee examined consumption data from the more than 700,000 respondents who participated in the Center for Disease Control and Preventions Behavioral Risk Factor Surveillance System (BRFSS) surveys over the 1984–1995 period [27]. Analysis of the data found that an increase of 5 percentage points in the unemployment rate would reduce drinks per month by roughly 3.5%, and regular drinking participation by roughly 19% showing that cyclical increases in unemployment are associated with significant reductions in alcohol consumption. In contrast, though, a 5 percentage-point increase in the unemployment rate increased the mean prevalence of binge drinking by roughly 8%. Similar evidence has been presented for Finland [28]. A pattern of binge drinking is associated with a higher risk of harm at any given overall level of alcohol consumption [29].

3.10 European Union studies

Confounding factors mediate in the economic conditions/unemployment-mortality relationship. Thus, in order to reveal the true effects of economic conditions or unemployment on mortality, the mediating confounding factors should be controlled for. Economou et al investigated the relationship between unemployment and mortality rates in 13 European Union countries (Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, The Netherlands, Portugal, Spain, Sweden, and the UK) during the twenty-year period 1977 to 1996 [9]. The effect of cofounders such as in-patient medical care, life-style factors and population density were taken into account.

When confounders were not accounted for, similar results were obtained as noted above [7, 8] with a negative, but statistically insignificant, relationship between unemployment and mortality for Europe. However, when including confounders in the analysis, a 1 per cent increase in national unemployment rates increased the mortality rate by 1.54 deaths for every 100,000 inhabitants. Excluding confounders from the analysis, found the relationship between unemployment rates and mortality to be negative and statistically significant for the 25-34, 35-44, and 65-74 age groups. Including confounders in the analysis, the relationship between unemployment and mortality was found to be positive and significant for the 45-54 age group but, negative for the 25-34 year olds.

Including or excluding confounders found a positive association between unemployment rates and mortality from ischaemic heart disease, and deaths from homicides and suicides. Cancer mortality did not appear to be significantly affected by the unemployment rate. Although the effect was insignificant when including confounders, when excluding confounders, a negative association between the unemployment rate and mortality from traffic accidents was found.

A more extended analysis of the effect of the economic crises in the European Union was undertaken by Stuckler and colleagues who used multivariate regression, correcting for population ageing, past mortality and employment trends, and country-specific differences in health-care infrastructure, to examine associations between changes in employment and mortality, and how associations were modified by different types of government expenditure for 26 European Union (EU) countries between 1970 and 2007 [30].

Age-standardised and age-specific mortality data were taken from the WHO European Health for All database. Mortality rates were age-standardised by the direct method, according to the European Standard Population. Official unemployment data were taken from the International Labour Organisation (ILO) Key Indicators of the Labour Market, which defines unemployment as all people who were without work yet available for or seeking employment. GDP data in current US$ were taken from the World Bank World Development Indicators 2008 edition.

The analysis found that every 1% increase in unemployment was associated with a 0·79% rise in suicides at ages younger than 65 years (95% CI 0·16–1·42; 60–550 potential excess deaths [mean 310] EU-wide), although the effect size was non-significant at all ages (0·49%, –0·04 to 1·02), and with a 0·79% rise in homicides (95% CI 0·06–1·52;3–80 potential excess deaths [mean 40] EU-wide), Figure 5. By contrast, road-traffic deaths decreased by 1·39% (0·64–2·14; 290–980 potential fewer deaths [mean 630] EU-wide). There was no net effect of unemployment on all-cause mortality or infant mortality rates.

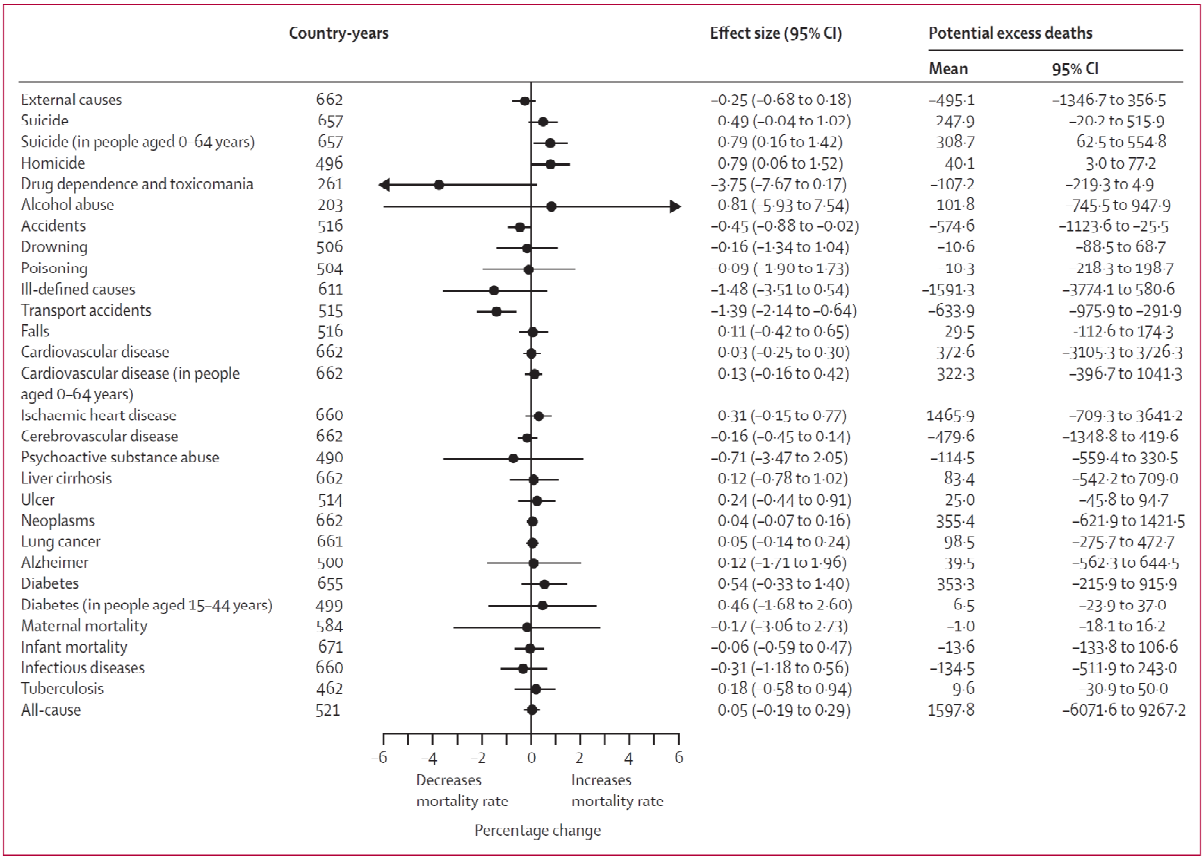

Figure 5 Associations of a 1% rise in unemployment with age-standardized mortality rates by cause of death in European countries 1970-2007. Source: Stuckler et al (2009).

A more than 3% increase in unemployment had a greater effect on suicides at ages younger than 65 years (4·45%, 95% CI 0·65–8·24; 250–3220 potential excess deaths [mean 1740]EU-wide) and deaths from 'alcohol abuse' (28·0%, 12·30–43·70; 1550–5490 potential excess deaths [mean 3500] EU-wide), Figure 6. The analysis found that younger populations were more sensitive to the negative health effects of rising unemployment than were those older than 60 years. For men, death rates from suicide and ischaemic heart disease at ages 30–44 years were positively related to unemployment. For women, there were significant associations with suicides at ages 15–29 years. The analysis found no significant effects of rises in unemployment rates on all-cause mortality rates for any age group, including infant mortality apart from a protective association in men aged 15–29 years, which seemed to accrue from reductions in traffic fatalities that accounted for roughly a third of all deaths in this age group.

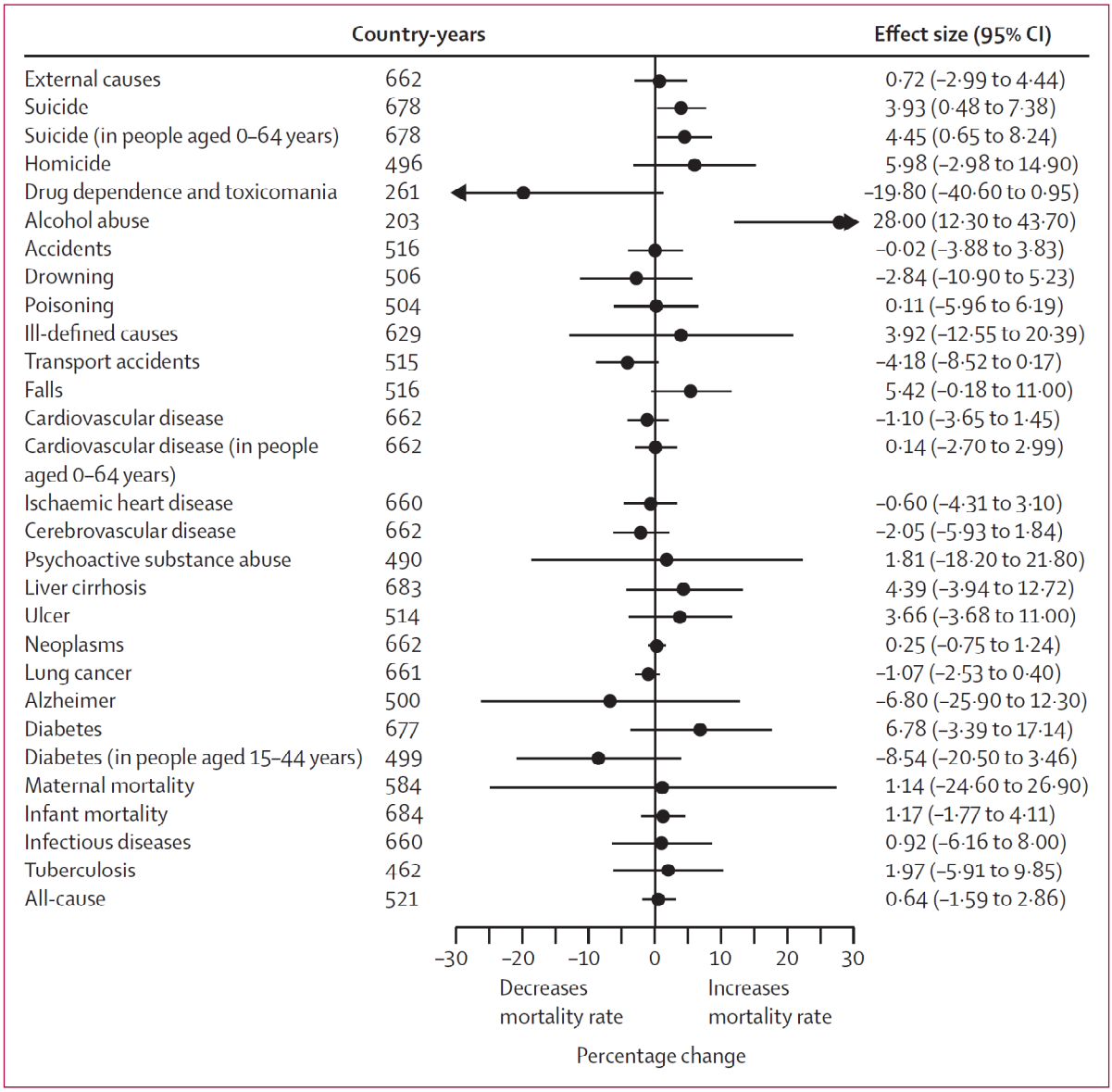

Figure 6 Associations of a >3% rise in unemployment with age-standardized mortality rates by cause of death in European countries 1970-2007. Source: Stuckler et al (2009).

3.11 Why might cyclical downturns worsen health?

Psychological factors, such as increased levels of stress or depression, are important indirect causes of the excess mortality observed during periods of economic crisis [31]. Such alterations in the psychological status of individuals in periods of economic crisis may derive from uncertainty about the future, as well as from need for adaptation to many changes in life, including work aspects [32]. Moreover, economic crises may be followed by changes in social structure and dissolution of the social safety net, [33] thus contributing to increased psychosocial stress. Such emotional responses may be enhanced within social networks of people having similar concerns. Psychological parameters, such as stress and depression, have long been considered as contributing factors to cardiovascular morbidity and mortality [34]. Stressful or untoward life events have been associated with short-term subsequent increase in the risk of cardiovascular death, while the opposite may be observed for pleasurable events. From a pathogenetic point of view, increased levels of circulating

catecholamines in response to stressful episodes can precipitate acute cardiovascular events [36]. Additionally, alterations in neuroendocrine and immune responses related to mood and mental changes may contribute to atherosclerotic plaque instability and thrombogenesis [37].

Furthermore, psychosocial distress associated with unfavourable life events can provoke changes in personal habits, including alcohol and tobacco overuse [38, 39]. The latter factors are well-known for their harmful effect on human health and have been considered as important underlying causes of the excess mortality observed in certain cases of economic crisis. Impoverishment and social instability can also account for increased violence-related mortality during periods of political and economic crisis [40]. On the other hand, accidents related to transportation are expected to decrease because relevant financial restrictions limit the frequency of travel [32]. Furthermore, decline in state financial resources may influence the degree of social welfare, as well as the function of the healthcare system, which is mirrored into increased infant-related mortality [41]. Attenuated utilisation of healthcare services, especially if this is associated with personal expenditures, may also contribute to excess mortality observed in periods of economic crisis [42].

Multiple factors might interactively mediate the link between the economic crisis and suicide. Stress caused by unemployment and financial problems may lead to depression, a widely documented antecedent of suicide. A survey during the post-crisis period in Korea showed that unemployment and low income were both predictors of depression [43], a finding which might help understand the pathways that connect macro-economic recession and individual suicides. Furthermore, unemployment itself may contribute to suicide independently of psychiatric illness [44]. Indeed, a recent prospective study investigating factors associated with the incidence of suicidal thoughts found that recent unemployment was associated with an almost four fold increase in risk [45]. However, a study in Finland showed that as suicide mortality declined during the early 1990s, a period associated with three-fold increases in unemployment, it was felt that declines in suicide were most strongly related to reductions in alcohol consumption [46]. Similarly, rises in suicide rates in the Russian economic crisis in 1998 were attributed in part to increases in alcohol consumption [15].

3.12 Chapter conclusions

In general, the evidence finds that economic recessions either have no impact on or reduce all-cause mortality, including infant mortality. The one analysis which controlled for lifestyle factors found that economic downturns in the European Union increased overall mortality. What is clear is that economic recessions increase deaths from suicide and alcohol use disorders, sometimes markedly so, but, often, with the number of increased deaths counterbalanced by decreases in deaths from motor vehicle fatalities, simply due to less driving. Although economic recessions seem associated with reductions in the volume alcohol consumed, there is evidence that particularly risky episodic heavy drinking increases.

4 WHAT CAN BE DONE TO MITIGATE THE EFFECTS OF THE ECONOMIC RECESSION ON HEALTH?

4.1 Macro policies

Stuckler et al (2009) examined how associations between employment and mortality were modified by different types of government expenditure for 26 European Union (EU) countries between 1970 and 2007 [30]. Social expenditure data in the domains of health, unemployment, active labour

market programmes, family and housing, were taken from the OECD Health Data 2008 edition, expressed in US$ adjusted for purchasing power parity.
In their analysis, two countries in western Europe stood out as de-coupling economic crises from the causes of mortality that in most cases did rise, especially in the case of suicides. Finland between 1990 and 1993, when unemployment rates rose from 3.2% to 16.6% while suicide rates dropped steadily, and Sweden between 1991 and 1992, when unemployment rates rose from 2.1% to 5.7% while suicide rates also dropped. In both these countries, microdata showed no relation between economic downturns, unemployment, and poor health [47, 48].

Across countries, the strength of the response of suicide rates to changes in unemployment varied substantially. Although, on average, the correlation between changes in unemployment and changes in the suicide rate was 0.12 (p=0.0018), the strength of this relation ranged from –0.13 (Sweden) to 0.59 (Spain). The commitments of the governments of Sweden and Finland to social support during times of crises, for example, through the use of active labour market programmes, could have had a role [49, 50]. One factor modifying the association between unemployment and mortality appeared to be differences in social protection. For every US$10 higher investment in active labour market programmes there was a 0.04% lower effect of a 1% rise in unemployment on suicide rates in people younger than 65 years. When this spending was greater than US$190 per head per year (adjusted for purchasing power parity), rises in unemployment were found to have no adverse effect on suicide rates.

4.2 Alcohol policy and the price of alcohol

Drinkers respond to changes in the price of alcohol as they do to changes in the prices of other consumer products. When other factors are held constant, such as income and the prices of other goods, a rise in alcohol prices leads to less alcohol consumption and less alcohol-related harm, and vice versa [51]. A meta-analysis of 132 studies found a median price elasticity for all beverage types of -0.52 in the short term and -0.82 in the long term, elasticities being lower for beer than for wine or spirits [52]. An elasticity of -0.52 means that for every 10% increase in price, consumption would fall by 5.2%. Another meta-analysis of 112 studies found mean price elasticities for beer of -0.46, for wine of -0.69, and for spirits of -0.80 [53].

Increases in the prices of alcohol and beer lead to a reduction in road traffic accidents and fatalities among people of all ages, particularly younger drivers. Increases in alcohol prices also reduce death rates from cirrhosis, intentional and unintentional injuries, workplace injuries and sexually transmitted disease rates. Higher beer prices have been shown to lead to reductions in rapes and robberies, homicides, crime, child abuse, wife abuse, violence at universities and violence-related injuries [54]. Price increases reduce the harm caused by alcohol, which also indicates that heavier drinking has been reduced [55]). Cirrhosis mortality is responsive to small changes in price: in the United States, increases in taxes have been shown to lead to an immediate reduction, which doubles over the long run [56]. More recent estimates found that a 10% increases in tax in the United States was associated with a 32% decrease in the death rate from cirrhosis [55].

Consistent with this, studies have reported that increases in the price of alcohol result in a reduction in heavy drinking and alcohol dependence. A study of survey data of 43,000 adults in the United States found a price elasticity for heavier drinking of -1.325 (p=0.027), for physical and other consequences of drinking of -1.895 (p=0.003), and for alcohol dependence of -1.487 (p=0.012) [57]. Studies in Alaska found statistically significant reductions in the numbers and rates of deaths caused by alcohol-related disease beginning immediately after alcohol tax increases in 1983 and 2002 [58].

A meta-analysis of fifty studies containing 340 estimates were identified found that a 1% increase in the price of alcohol was associated with a 0.35% decrease in alcohol-related diseases and injuries, a 0.04% decrease in violence, a 0.11% in traffic crash outcomes, and a 0.06% decrease in sexually transmitted diseases [59].

In the United Kingdom, a 10% increase in the price of alcoholic beverages was estimated to lead to a reduction in consumption of 4.4%, with reductions in deaths and hospital admissions, with 12 800 fewer unemployed people and 310 000 fewer sick-days per year [60.

4.3 Work place policies

A systematic review of the effectiveness of workplace interventions to improve mental wellbeing included 66 primary studies [61]. A broad range of interventions were identified and were evaluated based on either organisational interventions or stress management interventions.

Organizational policies

Ten studies, none of which were randomised control trials, evaluated the effectiveness of interventions involving a participatory approach to organisational change on mental wellbeing. Only four of the studies approached reasonable quality, and only one of these demonstrated that the intervention improved mental wellbeing [62]. Four studies evaluated the impact of training for managers and supervisors on the mental wellbeing of subordinate staff, only one of which found evidence for effectiveness [63]. Two small studies indicated that Psychosocial Intervention courses can have a positive impact in reducing burnout in the short term [64, 65].

Stress Management Interventions

Eight studies that were graded positively evaluated different types of stress-management training, of which six found a positive impact on mental wellbeing as measured by questionnaire. Six of the eight studies had training programmes involving a trainer or facilitator of which four found a positive impact on mental wellbeing, again measured by questionnaire. Two small randomised control trials [66, 67] found that small group sessions have a positive impact on mental wellbeing, and two other randomized trials found that therapy and counselling had a positive impact on mental wellbeing in the short term as measured by questionnaire [68, 69]. Two out of four studies found an impact of exercise on improvements in mental health. A randomised control trial undertaken in Sweden with 129 receiving the intervention and 174 controls, drawn from volunteers working for a IT and media company, found that a web based health promotion and lifestyle training package can improve mental wellbeing as measured using non-standard questionnaire at baseline and at 6 months after the web site and related components being available [70].

Cost effectiveness of interventions

A systematic review found very little evidence to determine whether or not interventions for mental health in the work place were cost-effective [71]. In the UK, modelling has been estimated that work-site interventions to promote the mental wellbeing of employees can reduce absence costs by between £145 and £1,295 per affected employee per year, and reduce presenteeism costs by between £350 and £3,865 per affected employee per year [72]. The net-benefit to employers of implementing interventions to promote the mental wellbeing of employees ranged from negative £220 to positive £1,155 per affected employee participating in the programme, incorporating solely the intervention-induced reductions in absence costs. Including the intervention-induced reductions in presenteeism as well, the net-benefit to employers ranged from positive £130 to positive £5,020 per affected employee participating in the programme. The net (social) benefit of interventions to

promote the mental wellbeing of employees ranged from positive £115 to positive £420 per participating employee, indicating that that such interventions increase total social welfare.

4.4 Work place alcohol policies

Organizational factors

There has been little research on the role of an adverse work environment in increasing the risk of alcohol use disorders. Recent analysis of the Whitehall II occupational cohort of London based civil servants study found, for women a clear grade gradient with those in the highest two grades having the highest proportion of problem drinkers, which was not the case for men [73]. In men, effort-reward imbalance was associated with alcohol dependence after taking account of age and employment grade, with those classified as putting in high efforts but receiving low rewards having the highest risk of being alcohol dependent. This association was also seen for women, although was not as marked. In addition, low decision latitude in women was associated with increased risk of alcohol dependence. Neither high job demands nor low work support were associated with alcohol dependence. These associations between work characteristics and alcohol dependence did not appear to be mediated through physical illness, poor mental health, or adverse changes in social supports or network size.

A Finnish study found a relationship between burnout and the risk of alcohol dependence in both men and women [74]. Burnout is a consequence of chronic work stress [75]. According to the most used operationalization in scientific research, burnout is a state of exhaustion in which one becomes doubtful about the value of one's work and one's competence [76]. Burnout has been related most consistently to psychosocial work characteristics, mainly high demands and low resources at work [77], but also to individual, interpersonal, other organizational and societal factors [78]. In the Finnish study, each one-point increase in burnout score was associated with an 80% increase in the incidence of alcohol dependence among women and a 51% increase among men. After adjustment for socio-demographic factors, the odds ratio of burnout for alcohol dependence was 2.06 (95% CI 1.52–2.81) in a logistic regression analysis for women and 1.51 (95% CI 1.28–1.79) for men.

Despite the structural relationships between the work environment and the risk of alcohol use disorders, few intervention studies have investigated the impact of changing work structures on reducing workplace alcohol-related harm [79, 80]. An exception to this is a study that compared two work settings with distinctly different managerial cultures [81]. One setting had a traditional hierarchical U.S. management design and the other was based on a Japanese management model transplanted to the United States. Although overall alcohol consumption rates in both populations were similar, the traditional management design was associated with more permissive norms regarding drinking before or during work shifts (including breaks) and higher workplace drinking rates. By contrast, the transplant management design was associated with greater enforcement of alcohol policies, which, in turn, predicted more conservative drinking norms and lower alcohol availability at work. Qualitative research clearly indicated that the transplant design facilitated the social control of alcohol problems, whereas the traditional design appeared to undermine such control.

Individually directed interventions

A recent systematic review of work-place interventions for alcohol-related problems [82] identified only ten intervention studies [83-92]. Interventions comprised three broad types of strategies: psychosocial skills training; brief intervention, including feedback of results of self-reported drinking, life-style factors and general health checks; and alcohol education delivered via an internet website. The psychosocial interventions included peer referral, team building and stress management and skills derived from the social learning model. For health checks, topics covered in addition to alcohol

were smoking, exercise, diet, weight, stress, depression, blood pressure, cholesterol, diabetes, cancer, safety and preventive health-care risks. Only one study reported no statistically significant results. Seven studies reported significant reductions in various self-report-measures of alcohol consumption or alcohol-related problems. Richmond et al. [90] reported significantly reduced consumption for women, but not for men. With regard to binge drinking, Lapham et al. [88] reported significantly reduced desire to binge drink, and Matano et al. [89] reported significant decreases in binge drinking. Walters &Woodall [92] found significantly increased perceptions of 'riskiness' of alcohol consumption, while Cook et al. [85] reported no significant effects on health beliefs.

The counselling-based interventions either reported no effect, or the effect was small, self-reported only, or measured desire to change rather than actual behaviour. The four mail-out/feedback/brief intervention studies were practical and possibly sustainable interventions that achieved outcomes somewhat comparable to the more intensive counselling interventions. However, the outcomes are self report.

One study which used objective outcome measures described the impact of a workplace peer-focused substance abuse programme in the transportation industry implemented in phases from 1988 to 1990 [91, 93]. The program focused on changing workplace attitudes toward on-the-job substance use in addition to training workers to recognize and intervene with co-workers who had a problem. The program was strengthened by federally mandated random drug and alcohol testing (implemented, respectively, in 1990 and 1994). With time-series analysis, an analysis was undertaken of the association of monthly injury rates and costs with phased program implementation, controlling for industry injury trend. The combination of the peer-based program and testing was associated with an approximate one-third reduction in injury rate, avoiding an estimated $48 million in employer costs in 1999. That year, the peer-based program cost the company $35 and testing cost another $35 per employee. The program avoided an estimated $1850 in employer injury costs per employee in 1999, corresponding to a benefit-cost ratio of 26:1.

4.5 Chapter conclusions

Investments in social protection and active labour market programmes can completely mitigate the relationship between economic recession and suicide mortality. Alcohol policy, and particularly policy that increases the price of alcohol, reduces deaths from alcohol use disorders, including deaths from episodic heavy drinking, and reduces unemployment. Evidence for the impact of work place policies is, surprisingly, rather limited, and what is available demonstrates limited impact. Nevertheless, stress management interventions and psychosocial interventions for alcohol use disorders can improve health and wellbeing, with both workplace and social net economic benefit.

5 Overall Conclusions

Chronic diseases feature at the top of the World Economic Forum's global risk landscape in terms of likelihood and severity of economic impact on the world [94]. Impaired mental health and addictive substances, particularly alcohol, dominate the ill-health and premature death of chronic diseases [95, 96]. The impact of the present economic crisis on health [97] presents an opportunity [98] to strengthen policies that would not only mitigate the impact of the recession on deaths from suicides and alcohol use disorders, but reduce the global health and economic burden presented by impaired mental health and alcohol use disorders in times of economic good and bad. There are powerful public health arguments for social protection and active labour market programmes and for

effective alcohol policy, which are strengthened by the present economic downturn. In addition, businesses can be reminded of the importance of wellbeing at work [99], not only for improving health but also for enhancing corporate performance [100].

Governments could consider reorienting their budgets to protect their populations now and in the future by budgeting for measures that keep people employed, helping those who lose their jobs with the negative effects of unemployment, and enabling unemployed people to regain work quickly.

Governments could consider strengthening their alcohol policies, in particular by raising the price of alcohol, or introducing a minimum price of alcohol. This may seem counterintuitive at the time of a recession, but such a policy would have a particular impact on reducing the harm done by risky and heavy episodic patterns of drinking.

Business and employers could consider implementing stress management programmes, which both improve mental wellbeing of employees and bring economic savings to work places.

Business and employers could consider implementing brief advice programmes for employees with hazardous and harmful alcohol consumption, which reduce harmful patterns of drinking and which are also likely to bring economic savings to work places.

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