

Individual, Community and Societal Effects of the Global Financial Crisis: a Bioecological Model

Francesca Eleuteri

*Department of Human Sciences, Lumsa University, 101, Piazza delle Vaschette
Rome, 00193, Italy*

E-mail: f.eleuteri@lumsastud.it

Lisa S. Arduino*^o

**Department of Human Sciences, Lumsa University, 101, Piazza delle Vaschette
Rome, 00193, Italy*

*^oInstitute of Cognitive Sciences and Technologies, National Research Council, 44, Via S. Martino della Battaglia
Rome, 00185, Italy*

E-mail: l.arduino@lumsa.it

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Abstract

Prior research suggests that the current economic crisis has negative impacts on population mental health, while some studies show that the recession also causes positive effects. This paper aims to understand the individual, community and societal effects of the global financial crisis by examining several studies using the bioecological model. The analysis suggests that coping methods for the global financial crisis are highly associated with: social policies and labour market programmes, social support, employment status and individual vulnerability.

Keywords: economic downturn, economic recession, mental health, suicides, unemployment

1. Introduction

Starting in December 2007, a global financial crisis spread around the world beginning with the housing bubble in the United States. Occurring periodically in residential markets, this was characterized by rapid increases in valuations of housing until home prices reach unsustainable levels and then decline. In September 2008, the official application for bankruptcy of Lehman Brothers in the United States exacerbated the crisis and caused devastating effects on the global markets, bonded together by globalisation. Among these main causes of the crisis, high raw material prices such as oil, a world food crisis and high inflation in several international countries threatened recession in all parts of

the world. Finally, a credit crisis with consequent trust collapsed global markets. Both Western and Eastern economies faced recession and the unemployment rate rose in almost every country, even in the wealthiest (F.J. Tsai & C.C. Chan, 2011).

Recession is defined as *a significant decline in economic activity spreading across the economy, lasting more than a few months, normally visible in production, employment, real income and other indicators* (Business Cycle Dating Committee of the National Bureau of Economic Research, 2008). Although the crisis started in the high-income countries, hitting the real economy with great force, low and middle-income countries were at risk too (A. Jack, 2009). This large-scale event effected population on several levels (J.M. Kirigia et al.,

2011; M. Suhrcke & D. Stuckler, 2012) including health. According to studies on economic downturn and health effects, since recession causes unemployment, the adoption of less healthy lifestyles and poor disease management occurs (B. Abel-Smith, 1986; R. Catalano, 1991; R. Catalano & B. Bellows, 2005; A.E. Clark & A.J. Oswald, 1994; F. McKee-Ryan, Z.L. Song & C.R. Wanberg, 2005; G.C. Murphy & Athanasou J.A., 1999; D. Stuckler et al, 2009). Moreover, road-traffic injuries and alcohol-related deaths may decrease during an economic turn-downs (U. Gerdtham & C.J. Ruhm, 2006; C.J. Ruhm, 2000; J.A. Tapia-Granados & A. Lonides, 2008; M. Suhrcke & D. Stuckler, 2012).

However, positive effects in the life of an individual can also be brought on by recession: according to these studies, people may engage in more health-promoting activities. By examining evidence from various contradictory approaches, this paper aims to understand the individual, community and societal effects of the global financial crisis. Primarily through exploring coping methods and resilience factors, an understanding of how some individuals better cope in economic downturn versus others will be brought forth. To identify the consequences of recession on individuals a comprehensive system approach that can capture complex multisystemic outcomes of a large-scale event is needed. This approach contrasts sharply with the literature on economic crisis, which focuses mainly on sociological effects without considering biological, individual and macrosystemic effects (D. Stuckler et al., 2009). Therefore, we believe that the ecosystemic model proposed by Bronfenbrenner (1979) and then expanded to include biological features (U. Bronfenbrenner & S.J. Ceci, 1994), is the comprehensive system needed to analyse the individual, family, community, and societal levels of an economic downturn. The model has been applied to several empirical studies examining whether under certain circumstances, the exposure to this event might promote or support resilience.

Economic downturns are large-scale events which involve, with great force, the whole community. Discussion on strengths and weaknesses of research through theoretical perspectives offer a hypothesis explaining a possible link between mental health and economical downturn. However, the empirical literature must evaluate whether such a link exists. The bioecological model will therefore be applied to such an

evaluation in order to understand which hypotheses the data will support better.

2. The Bronfenbrenner's bioecological model

Ecological models represent an evolving and impressive theoretical body, which aims to explain processes and features underlying human development in the environments in which human beings actually live (U. Bronfenbrenner, 1994). Bronfenbrenner is one of the most active author in this domain who analysed and integrated data collected by researchers in different disciplines over many decades. Throughout the years the model was revised and updated, but Bronfenbrenner launched the first ecological paradigm in the 1970s (U. Bronfenbrenner 1974, 1976, 1977, 1979). This was in response to the restricted theories of developmental psychology, which did not promote studies of children in real-life settings but only in "strange situations with strange adults for the briefest possible periods of time" (U. Bronfenbrenner, 1977, p. 513).

The bioecological model states that, since the embryological phase, genetic material does not determine definitive characteristics of humans but rather interacts with the environment in determining developmental issues (U. Bronfenbrenner & S.J. Ceci, 1994). This emphasizes the complex interrelation between genetics and environment. In the earliest phase of human's life, the psychological processes are not complete because they need psychological content present in the environment. Hence, development is determined by bidirectional dynamics, which are already manifestations of attention, action and response. Thus, the transformation from genotypes to phenotypes is occurring in two-way processes over time.

The bioecological model is defined by three main propositions:

- (i) proximal processes are formed of interactive communication occurred over extended period of time between a person, an active player and the immediate environment;
- (ii) the features of the proximal processes change constantly together with person and environment compel humans to adapt to its conditions;
- (iii) proximal processes are fundamental for actualizing genetic potential for effective psychological development.

The studies of Bronfenbrenner & Ceci (1994) aim to explain how genotypes change into phenotypes. They elaborate three hypotheses which provide an insight into the dynamics between genetics and environment which are responsible of human development. The first hypothesis states that proximal processes, by improving developmental functioning, increased the individual differences attributable to actualized genetic potential. This has a direct outcome in terms of heritability (h^2): it will be higher when proximal processes are strong and lower when such processes are weak. According to the second hypothesis proximal processes realise genetic potentials both for enhancing functional skills and for decreasing degrees of dysfunction. Finally, the last hypothesis states that if individuals live in environments which guarantee developmental resources and encourage engagement in proximal processes, then the capacity of these processes to realize genetic potentials will be greater for those living in more disadvantaged settings (U. Bronfenbrenner & S.J. Ceci, 1994).

For testing these hypotheses, Bronfenbrenner & Ceci (1994) analysed the literature on genetic inheritance and confirmed that no studies were found on genetic inheritance in contrasting environments that also contained data on proximal processes. Furthermore, confirmatory results of these hypotheses suggest that many participants may have hidden capabilities beyond those already shown, and these unvoiced potentials can be recognized through appropriate social policies. Therefore, Bronfenbrenner (1977) conceptualizes environments as contexts of development, being inspired by Lewin's theory of psychological fields (1917, 1931, 1935): he stated that the ecological environment is characterized by several interrelated structures, each inside the other and moving from the centre to the outside they can be defined as described below.

2.1. *Microsystems*

According to the Bronfenbrenner's theory a microsystem consists of series of activities, social roles, and interpersonal relations experienced by the developing human being in a *given face-to-face setting with particular physical and material features, and containing other persons with distinctive characteristics of temperament, personality, and systems of belief* (U.

Bronfenbrenner, 1994). The microsystem consists of stable characteristics of the individual, such as self-esteem, previous knowledge, intelligence, developmental level, perception of stress and general health status (M.C. Logsdon & S. Gennaro, 2005). The typical settings of the microsystems are family, school, peer group and work place. Another example could be the religious setting (U. Härkönen, 2007; H. Penn 2005, 45). Proximal processes are more active in sustaining development within the immediate environment of the microsystem (U. Bronfenbrenner, 1994).

2.2. *Mesosystems*

'Mesosystem', offered by Bronfenbrenner's theory (1994), *comprises the linkages and processes taking place between two or more settings containing the developing person*. Therefore a mesosystem is a system of multiple Microsystems, including interactions, such as family and peer relationships, or family and neighbors.

2.3. *Exosystems*

The exosystem encompasses the linkage and processes taking place between two or more settings, at least one of which does not ordinarily contain the developing person, but in which events occur within the immediate settings that does contain that person (e.g. for a child, the relation between the home and the parent's work place; for a parent, the relations between the school and the neighborhood group) (U. Bronfenbrenner 1989, 227).

2.4. *Macrosystems*

The concept of macrosystem has changed due to influences by the Vygotski's theory on Bronfenbrenner's work (U. Härkönen, 2007). The current definition (U. Bronfenbrenner, 1989, p. 228) runs as follows and the addition is italicized: The macrosystem consists of the overarching pattern of micro-, meso-, and exosystems characteristic of a given culture, subculture, or other broader social context, *with particular reference to the developmentally-instigative belief systems, resources, hazards, life styles, opportunity structures, life course options, and patterns of social interchange that are embedded in each of these systems*. Therefore, the macrosystem comprises the cultural context and includes societal norms,

sociopolitical factors, cultural subsystem norms, governmental systems, economic factors and the environmental effects of the event.

2.5. Chronosystems

The chronosystem and its relation to the other fields was developed only later. The chronosystem is a description of the evolution or stream of development of the external systems in time. The chronosystem models can cover either a short or long period of time (U. Bronfenbrenner, 1989).

Bronfenbrenner's theory has been applied over the years to several research fields, mainly in the developmental and educational psychology, in order to explain child development (U. Härkönen, 1991, 1996; H. Penn, 2005). The model has proven to be very useful in analysing also the effects of mass trauma caused by catastrophic events (M.A. Hoffman and T. Kruczek, 2011), where interventions at multiple levels are desirable.

3. Financial crisis and mental health: previous studies and theoretical models

Several studies regarding the relation between economic downturns and mental health outcomes focus on macro-level social aspects. In 1929 after World War II, the U.S. faced the Great Depression after the fall in stock prices that began around September the 4th, and became worldwide news with the stock market crash of October the 29th of the same year. In most countries, the effect was felt starting in 1930 lasting until the late 1930s or middle 1940s. It was the longest, most widespread, and deepest depression of the 20th century. Durckheim (1951) first hypothesized that economic downturns increased psychiatric pathology potentially leading to suicide (A. Horwitz, 1984) and that macroeconomic factors could have consequential psychological effects on individuals (Z. Zivin et al., 2010). Afterwards, Brenner's empirical studies confirmed that economic downturns increase mental hospitalization (M. Brenner, 1973); negative mental health outcomes were experienced by individuals who had not lost employment but who worked in organizations that lost many employees because of fear and stress (M. Brenner, 1990).

Brenner's Economic Change Model of Pathology is a theoretical model which account for complex

relationships between the economic environment and the changes in physical, social and mental well-being (M. Brenner, 1987). According to Brenner's model, economic instability is one of the 5 elements to influence mental health outcomes, along with long-term economic growth, economic inequality, adaptational error related to economic growth and random shocks. Economic instability includes recession and structural economic changes that are damaging to particular subgroups of society: high unemployment rates and business failures, declines in work force participation, and declining returns to investment (M. Brenner, 1987).

Long-term trend, cyclical change and lag period are three critical factors implied in Brenner's theory. 'Long-term trend' refers to lengthy, relatively even process of growth that is healthy for the economy. The cyclical change is the semi-periodic variation of several factors of national economic activity (employment, investment and consumption patterns) and cyclical change is one of the two elements of economic instability. Short-term cyclical changes usually interact with longer-term or structural changes. The lag period refers to the time range during which the effects could take place. Brenner (1987) stated that the negative effects on the population's health could arise within a 6-year period, including and following recession, and that they will have at least 2 peaks. In the first year of recession, the first peak is characterized by severe psychological reactions to economic downturns; general increases of suicide rate, mortality of highly vulnerable groups of the population, and more criminal acts occur. The second peak involves a decline in nutrition and medical care utilization affecting infant mortality and mortality among the chronic ill. Brenner (1987) considers three additional indicators referring to some important behavioural risk factors: alcohol consumption, cigarette smoking and fat consumption. This phase lasts up to three years following recession and it presents negative effects on physical, mental and social health.

Catalano & Dooley (1977) used 'provocation' and 'uncovering' hypotheses to account for the fact that macroeconomic indicators are directly related to the use of mental health facilities. Individuals and society decrease tolerance for disordered behaviour when there is economic instability, hence 'uncovering' behaviour resulting in more manifest psychiatric disorder observed by health providers. Furthermore, economic downturns can cause new disorders by eliciting or 'provoking'

maladaptive behaviour. Catalano et al. (1985) proposed another relevant theory, the 'shift' hypothesis. This model suggests that economic contractions cause less private treatment in certain populations, and an increased use of public mental health facilities.

The relationship between economic downturns and negative mental health effects has also been explained by other factors. Stress, caused by economic concerns, could determine an increase in drug and alcohol use, which can result in poorer mental health (Z. Zivin et al., 2010). Higginbottom et al. (1993) hypothesized that the financial strain, that results from losing a job, can affect marital life and satisfaction and further cause mental distress. According to Price et al. (2002), facing and dealing with the financial crisis can produce loss of personal control which further lead to depression, impaired functioning and poor health (R.H. Price et al., 2002). Financial strain can undermine social support determining negative relationships with family (K.D. Lincoln et al., 2005). Finally, workplaces form one of the main situations where it is possible to find social support; therefore, unemployment can lead to psychological distress (T. Atkinson et al., 1986). These theoretical perspectives and existing research have offered reasons why there may be a link between economic downturns and population mental health, but only the empirical literature can evaluate whether such a link exists.

It is fundamental to understand what kind of measurements researchers uses to examine the relationship between economic downturns and mental health outcomes. Studies usually use the unemployment rate because it is accessible and may provide a general overview of the well being of the economy (D. Dooley & R. Catalano, 1984; Z. Zivin et al., 2010). Empirical research studies analyse three primary mental health indicators: mental disorders, admissions to mental health facilities and suicide.

These studies examined differences in rates of admissions based on a variety of factors, including sex, age, socio-economic status, educational attainment and prior mental health status. Findings differ by demographic characteristics (such as sex and age) as well as occupational status. However, most research on the impact of unemployment on mental health focuses on suicide.

4. Application of the Bioecological model to the global financial crises

The multi-system framework proposed by Bronfenbrenner (1994) facilitates the identification of the effects related to economic downturns and allows an interpretation on the different level of the system. Several studies state that economic downturns could have negative effects on population mental health (D. Stuckler et al., 2009; A. Kentikelenis et al., 2011; M. Brenner, 1987) whereas other point out that financial crisis may produce in some cases positive outcomes (C.J. Ruhm, 2000). The studies analysed are based primarily on a shared Western socio-economic system because, even if the effects of the recession appeared in the Eastern countries too, several cultural biases could arise.

The first selected study investigates mortality rates over the past three decades and identified how governments might reduce adverse effects (D. Stuckler et al., 2009). Stuckler and et al. (2009), in order to examine the associations between changes in employment and mortality, use multivariate regression, correcting for population ageing, past mortality, employment trends and country-specific differences in health-care infrastructure. Moreover, they investigate different associations using several types of government expenditure for 26 European Union countries between 1970 and 2007. The conclusions of the study state that societal and cultural subsystem norms can either mitigate or hinder adaptive coping and response; indeed adverse health effects on suicides are mitigated when investments in active labour market programmes are high (>\$190 per head).

According to Stuckler et al. (2009), weaker labour market protections in the central and eastern European countries have made their populations very exposed to the potential for negative health effects when unemployment rates sharply rise. In addition, short-term effects of recession include an increase of premature deaths associated with intentional violence, as well as crime rates (M. Brenner, 1987; A. Kentikelenis et al., 2011; D. Stuckler et al., 2009). Researchers observed an high correlations between economic depression with suicides and alcohol-related deaths especially in people of working age. In addition, social inequalities widened, but in the meantime, reductions in road-traffic fatalities have been observed (D. Stuckler et al., 2009). Within the mesosystem, during the financial crisis, researchers

observed increased risk in mortality of people with low social support, as in the communist countries of central Europe in the 1980s, when the rise in mortality was greatest in unmarried men. Within the microsystem, rapid and large rises in unemployment were associated with short-term rises in suicides in working-age men and women, in homicides and in mental distress. Moreover, nutrition diet became less healthy during recession.

The second study investigates the relationship between economic conditions and health, specifically how health responds to transitory changes in economic conditions (C.J. Ruhm, 2000). Fixed-effect models are estimated using longitudinal data for the 1972–1991 period, with health inferred by total and age-specific mortality rates and 10 particular causes of death. The unit of observation is the state, and most of the analysis focuses on within-state variations in unemployment and personal incomes; limited attention is focused on changes in national unemployment rates. In addition, microdata for 1987–1995 from the Behavioral Risk Factor Surveillance System (BRFSS) are used to examine how risky behaviours and time-intensive health investments in physical activity, diet, and preventive medical care vary with the status of the economy. State fixed-effects are again checked for, as are a variety of demographic characteristics and general time effects. Ruhm (2000) found that employment rates are negatively and significantly related to total mortality and 8 of the 10 specific causes or fatalities, with suicides representing an important exception. Moreover, higher joblessness is associated with reduced smoking and obesity, increased physical activity, and improved diet.

Another representative study describes changes in health and health care in Greece (A. Kentikelenis et al., 2011). The method includes analysis of data from the EU Statistics on Income and Living Conditions, which provide comparable cross-sectional and longitudinal information on social and economic characteristics and living conditions throughout the EU. Researchers recruited in Greece samples of 12,346 and 15,045 respondents in 2007 and 2009, respectively, by use of consistent methods, of which a total of 26,489 had complete sociodemographic data. They drew reports from medical research institutes, health prefectures, and non-governmental organisations (NGOs). These reports include epidemiological indicators, data on hospital

admissions, and reports on mental health problems and the status of vulnerable groups. Kentikelenis et al. (2011) found a decrease in seeking medical care even necessary because of excessive waiting times and travel distances and reductions in accessing outpatient treatments. Moreover, drug users drop drug-rehabilitation programmes and individuals committed deliberate self-infection to obtain access to benefits of €700 per month. Within the mesosystem, infections rise due to shared facilities among intravenous drug users and at the microsystem level, suicides increased (+40% in the first half of 2011). Kentikelenis et al. (2011) observed an increase in HIV infections and heroin use, as well an increase in prostitution and unsafe sex. In addition, their findings report reductions in alcohol consumption and drunk-driving. The inability to repay high levels of personal debt can be contributed as a key factor.

The fourth study analyses the association between unemployment and suicide during different levels of national unemployment adjusting for several factors that explain or mediate the relationship (N. Maki & P. Martikainen, 2010). Their data comprised of annual population-register and death-register information on 25 to 64 year old Finns at the beginning of each year in the period 1988 to 2003, thus, forming 16 separate follow-up cohorts. Experience of unemployment was measured at baseline and during the previous year for each cohort. Suicide was followed for 12 months after each baseline. The method includes comprehensive population registration data with a large random sample of suicides. There was practically no loss of follow-up, and because the variables used in this study were obtained from registers, there was no self-report bias. The categorization of a death as a suicide is made by the forensic examiner; the medico-legal autopsies are carried out by a small group of well-trained pathologists and 97.9% of all violent and accidental deaths are subject to this kind of autopsy.

This study observed high excess suicide mortality among those who had experienced any length of unemployment. Adjustment for social class and living arrangements decreased the age-adjusted relative differences only a little, but income decreased the association notably especially among men. However, a more detailed understanding of the pathways between unemployment and suicide and of the mediating effect of income, further work should include additional

confounders such as home ownership or other wealth indicators. Workers in a precarious situation, such as unstable employment, had a lower suicide risk during times of high general unemployment, but among the long-term unemployed, the risk either remained quite similar between periods (among the men) or was related inconsistently to general unemployment (among women).

This alteration in relative suicide risk by national unemployment level is in agreement with a comparative study of 26 European Union countries that found substantial variation between populations in how sensitive suicide mortality was to economic crises. According to the authors (N. Maki & P. Martikainen, 2010), the explanation for the inverse association between national unemployment levels and suicide mortality rates appearing in Finland and Sweden includes governmental commitment to social support during times of economic stagnation. This was also explained as the counter-cyclical variation in one of the more proximate determinants of suicide, namely alcohol consumption. Maki & Martikainen (2010) found that large rises in unemployment were associated with short-term rises in suicides in working-age men and women, in homicides and in mental distress. Research also found that long-term unemployment seems to have a causal effect on the risk of suicide, which among men in particular may be partly mediated by having a low income.

The final study analyses the post-World War II changes in mortality rates in relation to deleterious economic changes, especially unemployment, business failure rates, and declines in real per capita income (M. Brenner, 1987). The findings reported are based on 127 multiple regression time-series equations which indicated recession has negative effects on two types of populations: individuals who lose employment and individuals who have short- or medium-term work contracts in firms which lose great numbers of employees derived from the economic crisis. For the second type of individuals, work becomes a stress experience for several reasons. The reasons are a set of factors that Brenner (1987) divides into 4 key points, well known in the work-stress literature: i) workers' error tolerance is reduced causing a major mental effort, anxiety increases over work performances and major responsibility; ii) loss of autonomy and self-regulation; iii) demand for higher levels of productivity, involving

quantitative increases in workload; iv) possible decreases in wages and/or lack of career advancement.

Brenner's (1987) research found increases in total mortality for virtually all age groups, in both sexes, for major causes of death and causes due to psychopathological conditions. Workers' social support networks are known to be important modifiers in the stress-illness process. Within the mesosystem, the work environment is one of the most affected and findings show increased work stress such as a smaller margin for error, anxiety over work performance, an increased level of responsibility, closer supervision by management, quantitative increases in workload, lack of career advancement. Finally, the economic depression causes disruption of workers' social support networks due to damaged social relationships. At the microsystem level, according to Brenner (1987), behavioural risk factors during economic downturns are alcohol consumption, cigarette smoking, and fat consumption.

5. Limitations of the selected studies

Stuckler et al. (2009) has several limitations: they focused for instance on the overall experience of populations. These effects within populations could count each other out to yield no overall population average effect of recession on all-cause mortality rates. Secondly, they investigated only mortality rates, which is a measure unrepresentative of the population health. The models proposed by Stuckler et al. (2009) almost certainly underestimate the full effects of recession on health. Thirdly, the study did not include data regarding social protections although they may vary considerably between countries, in particular in central and eastern European countries, which had high unemployment rates and weak social protections. Moreover, they could not measure job insecurity for EU countries over the full study period. Finally, as other studies regarding the same topic, they investigated only the short-term consequences of economic downturns. However, their measures of rises in unemployment are signs of the economic stress and uncertainty faced by the population, and not only by people who lose their jobs.

The limitations of the Brenner (1987) model are related to the lack of absolute evidence, which explains the causal relations, although considerable statistical support is offered for economic instability and its relation to adverse change in national health and well-being. Maki & Martikainen (2010) had limitations in

their determining of employment status at the time of death as it was only examined at the turn of each year. It is possible that redundancy could affect health in a manner similar to other stressful life events producing higher excess mortality soon after the event and a weakening effect over time.

There are substantial differences in study quality, yet these fails to fully explain the heterogeneity in findings. Heterogeneity based on elements such as populations, methods for measuring employment, and reporting of suicide likely accounts for some of the observed differences in findings across studies. The research faces measurement problems associated with examining the relationship between economic downturns and population mental health for several reasons: potential unmeasured variables/data missing, level of analysis, use of aggregate economic measures which may not sufficiently capture an individual community's experiences.

The selected studies may be affected by the *ecological fallacy* (D.A. Freedman, 1999). For example, errors that may arise from attributing population-level phenomena to individual experiences may prove to be a concern in this type of research. Comparability of research standards are not sufficiently guaranteed because studies cover a long period. Moreover, the selected empirical research could not be representative of the specific country or only few countries are studied in the current research.

Concerns about the limitations of the investigation also arise because research investigates the short-term consequences of economic turmoil (i.e., < 3 years). Some effects of the Great Depression seem indeed manifested 5–7 years after the bank crises of the late 1920s and early 1930s (D. Stuckler et al., 2009). The short and long term effects of a crisis differ. For instance, risks of cancer from a rise in tobacco use as a coping method to stress would require decades to manifest as lung cancer (Z. Zivin et al, 2010). It is important to relate the economic consequences of recession to specific behavioural changes and the temporality of their effects on specific health outcomes. As already stated, some effects will appear in coming years following the current crisis, so that it is possible to consider only older studies based on previous economic downturns, such as in Brenner's (1987) research.

Finally, investigations were limited to high-income countries with well-developed social safety systems that

provide formal insurance mechanisms to populations and a good level of wealth that allows people to react to income shocks. The effects of the current crisis for poor countries are likely to differ in both nature and scale. In poor countries, the population lives in or close to abject poverty, so any aggregate income shock is likely to push many people below subsistence levels. An additional decrease in available resources and hence in consumption in an under-nutrition setting seems very likely to be health - and possibly life-threatening in poor countries (Z. Zivin et al., 2010).

6. Conclusions

Previous research suggests that economic crises have the greatest potential adverse effects on health when economic changes are rapid, social protection and cohesion are weak and drugs and alcohol are widely available (M. Suhrcke & D. Stuckler, 2012). Moreover, there is a significant relationship between economic crises and psychopathology including suicide, help seeking for mental health problems, onset or exacerbation of mood disorders and distress. The poor, less educated, and unemployed populations are the most affected during a recession (Z. Zivin et al., 2010). However, some studies, such as Ruhm's (2000) research, document a strong inverse relationship between macroeconomic conditions and health.

In understanding the individual, community and societal effects of the global financial crisis we examined the evidences from several approaches, the coping methods and resilience factors which allow some individuals to better cope with economic downturn. Empirical studies suggest that coping methods for global financial crisis are related to: social policies and labour market programmes (Macrosystem); social support and employment status (Mesosystem); individual vulnerability (Microsystem).

The macrosystem level supportive programs promoted by governments are needed to better protect populations and provide for specific measures which help unemployed people and individuals who lose their jobs could mitigate health effects on suicides. High investments in active labour market programmes (> \$190 per head) could have positive effects in reducing the suicides rates (D. Stuckler et al., 2009). Government intervention focused on supportive programs, which help people to find jobs, can highly influence people's approach to the financial downturns. In this perspective,

people who react to financial strain in a more positive way or in a proactive way differ from those who negatively cope with crisis regarding environmental factors.

Within the mesosystem, people who have social support such as family or working environment can positively cope, whereas people with low social support have greater risk in mortality (e.g., in the communist countries of central Europe in the 1980s, when the rise in mortality was greatest in unmarried men) (D. Stuckler et al., 2009). This conclusion highlights people's needs to work in order to have better coping methods facing the economic crisis. The mesosystem is strictly connected to the macrosystem as working policies designed by governments and institutions determine working environment.

Within the microsystem, analysing the impact of economic change on health, it is crucial to identify the population at risk (M. Brenner, 1987). As described, rapid and large rises in unemployment were associated with short-term rises in suicides in working-age men and women (N. Maki & P. Martikainen 2010; D. Stuckler et al., 2009). Behavioural risk factors during economic downturns are usually alcohol consumption, cigarette smoking, and fat consumption (M. Brenner, 1987). These findings suggest that individual vulnerability factors such as low resilience and genetic predisposition (e.g., to addiction or suicides) could determine the different coping methods facing the financial crisis (B. Bondy et al., 2006; M.A. Enoch & D. Goldman, 1999; M. Kreek et al., 2005).

According to Rutter (2006), resilience can be defined as reduced vulnerability to environmental risk experiences, the overcoming of stress or adversity, or a relatively good outcome despite risk experiences (M. Rutter, 2006). The author suggests that resilience is an interactive concept in which the presence of resilience has to be inferred from individual variations in outcome among individuals who have experienced significant major stress or adversity. Findings showed that intermittent exposure to brief periods of stress, far from being damaging, increases resistance to later stresses (M. Rutter, 2012). Therefore, individuals who in the past already experienced economic downturns are more likely to cope better during the crisis.

Many studies have focused on suicide rates, and future research may focus on measures of psychopathology, as suicide is an extreme outcome and rare event (Z. Zivin

et al., 2010). It would be extremely interesting to investigate recent empirical research on psychiatric disorders. Moreover, there is relatively little discussion in the current research of policy approaches to address the negative impact of economic crises on mental health. The few studies that addressed policy questions suggested that the expansion of social protection programs such as labour, force expansion programs, social support systems; furthermore, access to health care and health insurance are needed (D. Stuckler et al., 2009; Z. Zivin et al., 2010). While governments are not inclined to spend money during a recession, expanded societal protection plans seems to decrease the negative effects of economic downturns on population mental health. Empirical works on the relationship between economic decline and mental health indicate that health systems and policymakers should consider the health and social impact of economic downturns and develop policies and programs accordingly (Z. Zivin et al., 2010).

Based on our review, the multi-system model suggests that policymakers should consider the macrosystem and the mesosystem as the starting point of the policies elaborated on to deal with the current economic and financial crisis. Governments should make investments in labour market programs that could help people who lose their job to quickly find another one. Specific supportive programs for vulnerable individuals who present risk factors, for instance for substance abuse, suicides and depression, should be improved. For future studies, it will be necessary to focus on the effects of recession on health, analysing different kind of measurements, as the current research mainly investigates mortality rates, which is clearly an incomplete measure of population health. Moreover, future research should investigate the long-term consequences of economic crises, as current data show only short-term effects of economic turmoil.

To conclude, it has to be taken into consideration that fear and anxiety due to the present crisis could be particularly long-lasting; even when the market recovers, people's stresses and associated behaviours (such as health-care seeking or alterations to health-system budgets) might not (D. Stuckler et al., 2009).

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