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Spini, Dario; Hanappi, Doris; Bernardi, Laura; Oris, Michel; Bickel, Jean-François

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TITLE

Vulnerability across the life
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directions

Research paper

Authors

Dario Spini
Doris Hanappi
Laura Bernardi
Michel Oris
Jean-François Bickel

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Swiss National Centre of Competence in Research

Authors

Spini, D. (1), Hanappi, D. (1), Bernardi, L. (1), Oris, M. (2), & Bickel, J.-F. (3).

Abstract

In this paper we aim at defining vulnerability in a life course perspective. We follow several steps to legitimate and define the concept of vulnerability as a new travelling concept for life course studies. We begin by presenting the social and historical context in which vulnerability emerges as a useful concept. Then we briefly analyse the current scientific production within the social sciences to determine whether vulnerability can be a heuristic concept for interdisciplinary research against other concepts like poverty, poverty and isolation in sociology, depression in psychology or frailty in gerontology for example. Finally, we review existing life course literature (theories of personality development, sociology of stress, accumulation of (dis)advantage) to propose a dynamic view of vulnerability in the long- and short-term and propose to put vulnerability on the research agenda based on the dynamic model of vulnerability, which is developed using the concepts of life trajectory and transition, resources, life events and stressors, and social context.

Keywords

vulnerability | life course | risks | resources | stress | process | social context | social policy

Author's affiliation

(1) University of Lausanne, (2) University of Geneva, (3) Haute Ecole Fribourgeoise de Travail social

Correspondence to

dario.spini@unil.ch

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1 Introduction

Although, or maybe because there is no consensus on its definition, vulnerability is a topic that has known a dramatic success during the last years in all fields of the human and social sciences. The main objective of this paper is to develop the notion of vulnerability from a life course perspective. To do so, we define a dynamic framework of vulnerability on the basis of four main concepts: resources, stressors, outcomes, and contexts. Using this dynamic framework, we propose a new definition of vulnerability as a lack of resources, which in a defined context, places individuals or groups¹ at major risks of experiencing negative consequences across their life course. For approximately the past 12 years, a pluridisciplinary group (psychology, sociology, social demography, socio-economics, and social policies) has developed a shared framework for studying life courses on the basis of individual life trajectories (Levy & Pavie team, 2005; Oris et al., 2009; Sapin, Spini, & Widmer, 2007). This collective effort is an on-going process that led us to develop a shared program of research focused on the concept of vulnerability (www.nccr-lives.ch). Focusing on vulnerability has several advantages. First, vulnerability is a useful concept to describe difficulties and resilience processes that can be experienced across the life course in a period of history marked by uncertainty and new social risks. Second, vulnerability pertains to the interaction of individual and contextual dimensions, and it can be understood both as a state and as a process; both these aspects make vulnerability a perfect candidate to guide interdisciplinary research in a life course perspective. Third, despite or rather because of the increasing interest in vulnerability, the heterogeneity of the ways in which it is used calls for theoretical rigor and definition.

In the current paper, we follow several steps to legitimate and define the concept of vulnerability as a new heuristic tool for life course studies. We begin by presenting the social context in which vulnerability emerges as a useful concept. Then we briefly analyse the current scientific production in the life course/ life span traditions within the social sciences to determine whether and in which ways vulnerability can be a heuristic concept for interdisciplinary research. Finally, we review existing life course literature to propose a dynamic view of vulnerability in the long- and short-term in order to transform a rather static concept for analysing life courses dynamically.

2 Vulnerability in post-industrial societies

The social and political dimensions of the current global crisis that arose from the latest financial downturn have diffused into our Western economies. This is, however, only one episode in a global transition that started in the 1970s through which our wealthy populations faced a shift from industrial to post-industrial economies and societies. Moreover, the national welfare states seem less able to protect their residents in the context of globalisation. Finally, since the 1960s, our lifestyles have changed, especially in terms of growing diversity and less stability in the organisation of personal life. These developments have been subject to increased media and coverage and political debates concerning different types of insecurity (migration, financial crises, environmental issues, new epidemics, etc.), which have contributed to some extent to increased feelings of insecurity and the impression that social cohesion fissured. The most recent historical period over the past four decades has been characterised as a period of growing *uncertainty* (Beck, 1992; Castel, 2009; Sapin et al., 2007) that has five general features²:

(1) *New social risks*: Life in post-industrial economies and societies is characterised by new adversities, demands or uncertainties. Family discontinuities and the labour market's increased demand for flexibility and personal engagement are labelled as the "new social risks" (Armingeon & Bonoli, 2006; Esping-Andersen, 1999; O'Rand, 2003);

(2) *Individualisation and biographisation paradox*. On the one hand, we face a clear imperative of being or becoming the agent of our own life course (Kohli, 1986). On the other hand, this implies taking full responsibility for successes and failures during trials or hardships, which places the "liberated" individual under a high and continuous pressure to make the right choices. This, in turn, increases the importance of people's capacity to overcome trials or hardships, i.e., sources of high and continuous strain. However, if such strain exceeds people's capacity to cope, they will be likely to suffer from decline in physical and mental health, most notably depression and/or psychosomatic problems (Ehrenberg, 1995; Martucelli, 2006);

(3) *Diffusion of stress across life domains and between related individuals in a context of contingent work life courses*: Throughout his concept of "contingent work life course", Heinz (2001, 2003) emphasises that in post-industrial economies, people must continuously negotiate their career. This may have deleterious effects because difficulties in the work sphere may diffuse to other spheres, not the least of which is the family (Bronfenbrenner, 1992; Lyonnette, Crampton, & Wall, 2007; Roehling, Moen, & Batt, 2003; Scherer & Steiber, 2007). This diffusion of stress between life domains is an

important feature of life courses (McNamara, Pitt-Catsouphes, Matz-Costa, Brown, & Valcour, 2013; Pearlin, 1989; Pearlin, Libermann, Menaghan, & Mullan, 1981; Pearlin, Schieman, Fazio, & Meersman, 2005). Moreover, as lives are linked (Elder, 1995), spill-over effects of stress are not only an individual phenomenon but also concern other persons connected to a given individual, notably in the household (Ranci, 2010);

(4) *The welfare state dilemma.* Welfare institutions are increasingly considered unable (also often as a result of declining resources or political will) to provide an efficient response to the new social risks, while their support remains essential to avoid social exclusion or to interrupt a chain of adversities (Esping-Andersen, Gallie, Hemerijk, & Myles, 2002; Sarfati & Bonoli 2002; Ranci, 2010) - essential because there are no alternative security networks with a similar scope. Moreover, state and public institutions are expected to structurally promote young adults' integration, gender equality, and active ageing (Esping-Andersen, 2009; Esping-Andersen et al., 2002). In line with these changes, in the case of failure, the collective welfare organisations are invited to use tools to target the individual who must be "activated", i.e., motivated, restored, enriched from new human or social capital, and ultimately reinserted into society (Barbier, 2002; Barbier & Ludwig-Mayerhofer, 2004; Bonvin, 2008). In our view social action (be it private or public, formal or informal) may benefit from life course research in order to develop knowledge and more efficient strategies to compensate life trajectories of individuals who fall out of "normal" or valued tracks. This would indeed appeal to new life course sustainment and repair institutions.

(5) *Persistent and growing social inequalities:* There are multiple phenomena related to inequalities that require researchers' attention. With respect to social stratification, the "working poor" are the most emblematic and concrete illustration of growing precariousness (Shieler, 2005). In a life course perspective and the context of the macrosocial changes described above, the so-called new social risks disproportionately affect specific sub-populations like young adults (Furstenberg, Rumbaut, & Settersten, 2005; Galland, 2001, Settersten & Ray, 2010) or female-headed households (Gimenez, 1990).

3 Vulnerability in life course research

Although not exhaustive, the above-mentioned developments show that during the last decades, old and new challenges, ambiguities, and paradoxes have substantially changed the risk structure that emerged in the early post-war years. In a "risk society" (Beck, 1992), it is crucial to examine the articulations between psychological structures, socio-cognitive regulations, and social structure to

identify their respective contribution to individuals' answers to stressful events and chronic hassles. Interdisciplinarity is crucial in order to advance knowledge in life course research (Levy, Ghisletta, Le Goff, Spini, & Widmer, 2005). Especially if the research focus is on the processes through which people fall, fail, but also resist and overcome life stressors, and possibly grow. This is because human development is classically conceived at the intersection of the following three domains: biological, psychological and social (Baltes, Lindenberger, & Staudinger, 1998). Acknowledging that a complete analysis of life trajectories should include the biological foundations of organisms and individuals, we will limit the present paper to the psychological and social domains that are recognised as the main theoretical and historical roots of the life course perspective within the social sciences (Lalive d'Epina, Bickel, Cavalli, & Spini, 2005; Marshall & Bengtson, 2011; Mayer & Baltes, 1996; Sapin et al., 2007; Settersten Jr, 2003). Our guiding question is: What are the promising directions within the social sciences in analysing life trajectories and their associated risks? To tackle this question, we investigated how the social sciences have approached vulnerability over the past ten years. An empirical analysis of the 2000-2010 scientific production about life courses has been conducted to assess the state of the art in the social sciences in relation to vulnerability across the life span (for a complete description see Hanappi, Spini, & Bernardi, in press). This topography of the field provided us with a global view of (1) the state of integration of the psychological and sociological approaches to the life course and (2) the status of vulnerability within this field of knowledge.

We examined how selected themes in life course research and related fields are systematically associated with different life stages, from childhood or adolescence until the post-retirement years, and with common forms of data used, such as panel or cohort data. We used correspondence analysis (Greenacre, 1984; Benzecri, 1992) – a multivariate technique suited to the exploration of associations among objects in a data set, which is an original, as yet little-used way to study the semantic structure of social science discourse.

3.1 Data

The data include article abstracts from scientific journals in the social sciences from January 2000 to February 2011. They were extracted from two major bibliographic databases: (1) the *PsychINFO* database, which is an abstracting and indexing database with more than 3 million records devoted to peer-reviewed literature in the behavioural sciences and mental health, and (2) the *FRANCIS* database, a 2.6 million-records bibliographic database covering humanities and social science topics in an

international perspective. The keyword search of articles in these two databases resulted in a list of approximately 20,000 articles published in 2,233 journals. Main search keys comprised relevant themes (e.g., life course, life span, vulnerability, depression, stress, poverty, welfare state) and commonly used data (e.g., longitudinal studies, panel data, cohort data). Contributions such as literature reviews or other meta-theoretical articles, meta-analyses, short notes and comments were excluded. To limit the analysed material, we focused on the journals that published 50% of all articles corresponding to the search criteria, which resulted in a cut at 26 articles published at minimum per journal in the observation period. Therefore, abstracts from 10,632 articles entered the textual analysis.

A comprehensive vocabulary and repeated segments of words were generated using the SPAD software (Morineau & Aluja-Banet, 1998). We identified and retained specific isolated words (e.g., depression) and repeated segments (e.g., personality disorder) that were most frequent in the extracted abstracts; in other words, those with a test-value higher than 2.58 in absolute value (Lebart, Salem, & Berry, 1995, pp. 181-184). Frequency counts were based on the total number of occurrences in the full corpus. Because the meaning of words is inextricably linked to how they appear in compound words that can either inflect or change their meanings, we focused the analysis primarily on repeated segments (Lebart, et al., 1995, p. 35). In addition, each abstract was coded according to discipline by taking into account its original source.

3.2 Correspondence analysis

The identified dominant disciplines – psychology, sociology, gerontology and ageing, demography, general social science, and the field of youth studies – form the columns, and the various salient terms (repeated segments) in the scientific abstracts constitute the rows of a contingency table which was the input to our correspondence analysis.

In this analysis, we examined salient themes (active row variables) and their relationship to disciplines (active column variables) in which the number of times each discipline (column) coincide with particular themes. In total, 72 salient themes were considered. In this first analysis, the percentages of variance of the eigenvalues were 60.29% and 17.10%, respectively, for the first two axes. For the purpose of the current analysis, we focused on these first two axes, which explained 77.39% of the overall variance of the model.

To allow interpretation of the detailed results, Figure 1 offers a graphical representation of the first two axes and the location of disciplines and selected research themes (repeated segments) in this two-dimensional space. The size of the theme symbols is proportional to their contribution to the axes. The overall structure of the two-factor solution suggests an interpretation of the organisation of the field along two dimensions. As can be seen, the first and most important axis expresses the disciplinary division between psychology, on the one hand, and sociology, on the other hand. Here, psychology loads positively, whereas sociology (and demography) loads negatively. Youth studies, gerontology and social sciences³ take a middle position meaning that they publish or interdisciplinary research or disciplinary ones in the various disciplines involved here. It is within this pattern between the publication supports that the difference between themes further accentuates this disciplinary divide.

The second axis distinguishes two stages of life from the other ones: childhood and old age. In particular, it shows a clear succession of the different life stages, from childhood to adolescence, midlife and old age (represented here by the single term elderly)⁴. Once isolating the examined specific age groups (older and younger people) correlated with gerontology and youth studies, axis two ranges from epidemiological, macro-level studies e.g. on mental health, health services and social support, to individual-level research in which psychology and sociology dominate. Most interestingly, none of the salient themes (active variables) indicating the life stage of adulthood enters the most frequent words, whereas the opposite is true for younger and older age groups. Thus, we can assume that many abstracts address the life stage of adolescence, including children or the elderly, but omit adulthood as an important stage in the life course. This does not necessarily mean that psychology and sociology do not include adulthood in their discipline, on the contrary. However, it is true that adulthood has been considered too long as a period of stability and was until recently (MIDUS study in the USA for example partially compensated this trend) neglected by lifespan psychologists and life course sociologists (Willis & Reid, 1999; Settersten Jr, 2003).

3.2.1 *Themes in psychology*

Bipolar disorder, depression, depressive episodes, stress, adaptation, coping strategies, and personality disorder shared a high proximity to each other and are prevalent in most psychological abstracts. Depression, disorder and stress studies appear as core topics in the psychological study of vulnerability. One can also note that life-span psychology is closely associated with older ages, as could be expected from its historical origins (Baltes, 2000).

3.2.2 *Themes in sociology and demography*

On the sociological side, we find concepts such as labour force, adolescent health, education, family structure, income dynamics, labour market, welfare state, intergenerational transmission, human capital, and single mothers, reflecting the focus on what we called above the life domains of education and work, and family, health being a negative outcome when stress diffuses. The concept of capital reflecting primarily social and economic capital also appears as central in sociology, in line with influential traditions initiated by Bourdieu and Coleman or Putnam. The position of life course research shows its proximity to its sociological roots.

3.2.3 *Themes in gerontology and youth studies*

Gerontological abstracts refer to the theme of frailty, whereas the youth studies are more focused on health services and mental health despite the voluminous literature on aging and health⁵. Adulthood, we projected in the bi-dimensional space even if it is not constitutive for any of the dimensions, is associated with socioeconomic status on the sociological side and social support and depressive symptoms on the psychological side.

3.3 *Vulnerability as an integrative key concept*

The most remarkable - and, in fact, surprising - result of our exploration is that vulnerability emerged as a key concept at the crossroad of various disciplines. In this configuration, the concept of vulnerability, even if it stands closer to the psychological pole, has an intermediate position between the three poles (psychology, sociology, and gerontology) and is close to interdisciplinary publication supports (social sciences and youth studies). In this regard, it is a better candidate for interdisciplinary approach than are disciplinary-related concepts like psychological disorders, depression, or concepts from sociology like poverty, or even better than frailty which is used in gerontology. Situated between adolescence and adulthood, it also appears to be relevant for examining adult life. Moreover, being less determined by a psychological or sociological orientation, it is a suited linking construct between these two disciplines – or more broadly, linking various (micro-, meso-, and macro-) levels of explanation.

4 Vulnerability across the life course : A promising field of knowledge integration

4.1 *Vulnerability as a state*

Sociologists who studied social exclusion (e.g., Castel, 1995; 2009; Gallie, 2004; Leisering & Leibfried, 1999; Paugam, 1991, 1995, 1996) indicated that the risk of poverty as a chronic state

decreased in the last decades in wealthy countries but that it is only the emerging part of a protruding iceberg of precariousness, disaffiliation, frailty, or insecurity, in other words, of vulnerability. Larger segments of the population are living “on the edge” – like typically the “working poor” - or are confronted with various forms of what Bourdieu and his colleagues (1993) have termed “social suffering”. In that context and along with this research tradition, vulnerability can be defined as a lack of resources or as a social weakness (Ranci, 2010). We can add that this deficit places the individual or group at risk of negative outcomes such as personal distress, downward-leading life conditions, and limited social participation and capability to live a valued life. It also affects individuals’ capacity to cope with critical events and to take advantage of opportunities.

In this line of thought, the label “vulnerable” refers to individuals or groups that are in a zone in which functionality is secured but at the limits of available resources. In this state, vulnerability becomes manifest if the individual or group is challenged by critical events or depleted by chronic stresses or environmental pressures. It is important to distinguish between manifest and latent vulnerability. Manifest vulnerability refers to a state of absolutely or relatively limited resources that is recognised by the concerned individual or group and by its environment (institutions notably) and that place the individual or group at risk of irreversible losses in the case of additional stresses. Latent vulnerability is a state of lacking resources that has not yet resulted in socially or institutionally visible negative outcomes. With this distinction and the developments above, we propose a theoretical generalization of what has been coined precariousness versus poverty in sociology (Paugam, 1995) or frailty versus dependence in gerontology (Spini, Ghisletta, Guillely, & Lalive d’Epinay, 2007). Our perspective is also close to the concept of (differential) frailty in demography that expresses the latent distribution of exposure to risk in a given population (Oris & Nicolet, 2013).

Two other important characteristics of vulnerability as a state are its multidimensionality, and the embeddedness of vulnerability into specific contexts, to which we now turn.

4.2 *Multidimensionality of vulnerability*

There is now a large consensus that vulnerability, much as the concept of individual life course, must be conceived multidimensionally. This holds also when both concepts are integrated. Let us start with a focus on vulnerability. It can be conceived as a syndrome (Ranci, 2010) and can involve biological, social, and psychological types of resources (Baltes, et al., 1998). At the biological level already, individuals do not have equal resources. Genetics and environmental factors interact and have life

course consequences (Rutter, Moffitt, & Caspi, 2006). Biological influences on development are particularly visible at the two extremes of the life span (Baltes et al., 1998). For example, Obradović and Boyce (2009) have reviewed evidence that there is an interaction between early adversity (also related to socio-economic factors) and genetic factors in early development. At the other end of the life span, empirical research also documents the interactions between the individual and its environment that result in differential ageing (Bergeman, 1997). As stated above, while recognizing the importance of those dimensions, in this paper we remain centred on the psychological and social processes.

The second type of resource is indeed psychological. Hooker and McAdams (2003) identified three main directions and traditions within personality developmental psychology that distinguish between personality traits, cognitive-affective self-regulation, and identity narratives⁶. Studies on personality traits, notably within the Big Five tradition (McCrae & Costa, 2003), have been heavily produced in the last decades. In this orientation, individuals are thought to differ on five main dimensions: agreeableness, conscientiousness, openness to experience, extraversion, and neuroticism. On one side, personality trait development across the life span has been investigated through longitudinal studies, and their development is now well-described (Roberts & Mroczek, 2008; Roberts, Walton, & Viechtbauer, 2006). At a synchronic level, many studies show that these personality traits, notably neuroticism, are associated with psychological vulnerability (depression, negative affects, etc.). However, on the other side there is a lack of evidence of the long-term effects of personality traits, and more interestingly to life trajectories in the various spheres of life (career, health, family). The main cited study is correlational and showed, for a moderate sample of men, that personality traits are correlated with adult psychological adjustment 45 years later (Soldz & Vaillant, 1999).

Socio-cognitive self-regulation is an approach complementary to personality traits. Differences and contradictions between these approaches are acknowledged (Mischel, 2004; Mischel & Shoda, 1998). Notably, cognitive-affective self-regulation is considered as learned, whereas personality traits are believed to be genetically grounded (Costa & McCrae, 2003). Moreover this second approach is clearly a person-situation approach (Mischel & Schoda, 1998; Ross & Nisbett, 1991), which also considers personality as a learned system of behaviours, beliefs and values that are related to social interactions and social groups (it is clearly an orientation that is also endorsed by many sociologists). Lifespan psychology has developed numerous identity and self-regulation theories that can be incorporated into a life course perspective (Heckhausen, 1999; Spini & Jopp, in press). Most theories, whether framed in

terms of coping, self-regulation or identity, are motivational and underline the role of self-esteem, control (self-efficacy), continuity and distinctiveness (Breakwell, 1987; Heckhausen, 1999; Leary & Tangney, 2003). The third tradition is related to identity and narratives and analyses how individuals work continuously on their identity as a central activity of their existence on the basis of meaning and experiences (Erikson, 1982; McAdams, 1993). These three perspectives (personality traits, self-regulation, and identity narratives) together provide a complex psychosocial account of how individuals adapt themselves on the basis of learned capacities and genetic predispositions. These social and biological foundations of psychological functioning are also recognised in depression, one of the major issues related to vulnerability in empirical research (Beck & Alford, 2009).

This last-mentioned field of research could offer a bridge to the third type of resources, social resources. Social influences are numerous and can be analysed following various types of resources, including socio-economic status, economic, cultural and social capital, etc. As for the other overarching types of resources, social resources are multidimensional. Socio-economic status, notably education (Ferraro, 2011), is an important main factor in understanding vulnerability, particularly in health and well-being (Adler et al., 1994; House, Kessler, Herzog, Mero, Kinney, & Breslow, 1992; Ulbrich, Warheit, & Zimmermann, 1989). However, other types of capital such as social networks or convoys (Antonucci, Akiyama, & Takahashi, 2004; Kahn & Antonucci, 1980; Widmer & Jallinoja, 2008) and cultural resources (Bourdieu, 1979; Bourdieu & Passeron, 1970) also proved to exercise essential influences across the life course. A recent analysis of vulnerability included 44 indicators of deprivation and well-being to detect segments of the population with different profiles. The results indicated that different profiles of deprivation and relative low well-being can lead to vulnerability (Lucchini & Assi, 2013).

Multidimensionality thus appears as a core element of vulnerability related to biological, psychological, and social factors. Here, these factors were presented separately to provide a short overview of past research, but no effect is purely independent from other influences. However, the most interesting developments for life course research are now at the intersection and integration of these influences (Mayer, 2009). An integration process of multiple sources of influence is also in the interest of the study of vulnerability. The current paper focuses on the social sciences. In the next future further efforts should aim at integrating advances in research on vulnerability done in the field of biology, epidemiology and medical sciences (see Smith, 2004).

4.3 *Vulnerability within social contexts*

Conceptualising vulnerability as a syndrome that can be detected and used to create objectified categories applicable to individuals or groups has serious limits for theory building. The identification of who is poor, mentally ill, or disaffiliated is crucially dependant on a specific time and place. As a consequence, vulnerability is by its essence anchored in specific contexts and historical periods.

The systemic nature of vulnerability should be conceptualised at different levels in a systemic or ecological perspective (Bronfenbrenner, 1979; Lawton & Nahemow, 1973). Such a perspective adds the idea that vulnerability should be conceived and studied across levels (from cells to societies) and domains of studies. For example, health is not independent of social status and nations' wealth, family life is not independent of family policies, social network supports, institutions, the economic/political system, societal norms, etc. (Di Prete, 2002; Esping-Andersen, 1999; Krüger & Levy, 2001; Ranci, 2010). In order to use vulnerability as a linking concept between micro- and macro-systems we need to turn to the concept of stress in the sociological tradition.

Sociological research on stress (Pearlin, Lieberman, Menaghan & Mullan, 1981; Pearlin, 1989) has insisted on the fact that vulnerability is inseparable from the larger social and economic context in which people live. This context, which we conceptualise as a set of structures (system of social stratification, institutional fields, social representations, and social policy arrangements) coupled to various degrees with each other, can affect virtually all aspects of the vulnerability process, including the types and intensities of stressful conditions to which people are exposed, the ways that they are able to respond to and deal with these stressors, and the nature and consequences of these stressors. Yet, not all stressful conditions arise directly out of the social context. For instance, ecological disasters can be the result of hazards (Misztal, 2011). But, even in these circumstances, individuals and groups react and adapt themselves to stressful individual or collective situations.

The resources individuals are able to mobilise, the ways how they do so and the goals they pursue through their action are governed to a considerable part by their location in the stratification system (seen both as an opportunity structure and as a basis for their worldview), the institutional rules that impinge upon them, the collective norms and beliefs that channel their perspectives, and the various resources that they have at their disposal. Hence, vulnerability processes that the individuals face, experience and deal with are observed within the societal context, which has its own dynamic and which should be systematically studied in its own right. These structures and objectified institutions heavily

condition the constraints and opportunities faced by the individuals, locating a more or less large number of them in vulnerable situations and/or impinging on their capacity to act and make biographical choices in such situations. It is equally crucial not to reduce the individual level to these structural features and to avoid a view on vulnerability processes and individuals as completely predetermined (Hitlin & Elder Jr, 2007). Individuals approach problems with a given set of personal characteristics (e.g., personality traits, coping styles); they adapt to, act on, elaborate, cope with, or “realise” what is structurally given. In this process, the “objective”, structured reality is enacted and modified by the individuals—for instance, through collective action to request a new policy arrangement—and they in turn change. In the current life course tradition, such a perspective is usually referred to as an agency within structure approach (Archer, 2000; Settersten Jr, 1999; Hagestad & Dannefer, 2001; Marshall & Clark, 2010).

A multidimensional and ecological study of vulnerability implies a dialectical view of individuals and society in a complex but incomplete alliance between objectivism and subjectivism. Recent research on collective vulnerability and climates of victimisation indicates that contexts can be conceived as a combination of objective structural and psychosocial interpretations of shared context risks and opportunities (Marshall & Clark, 2010; Shanahan, 2000). In this regard, the developments of innovative methodologies to analyse these psychosocial collective climates are promising developments in life course research (Elcheroth et al., 2012).

5 A dynamic vulnerability framework

5.1 Long- and short-term dynamics of vulnerability

We must now move beyond static snapshots of individuals’ lives to analyse processes of vulnerability across the life course, with a focus on individual life trajectories embedded in their wider and dynamic social context (Levy et al., 2005). A life course perspective offers a set of conceptual tools and principles for integrating different perspectives and addressing the complexity of vulnerability rather than a unified theory. This openness makes it a highly valuable tie-in of an innovative vulnerability framework in which social scientists from various backgrounds bridge the gap between their disciplines and benefit from a dialogue based on a consistent set of principles and tools (Oris, Ludwig, de Ribaupierre, Joye, & Spini, 2009).

In the preceding section, we provided an empirically based enumeration of several dimensions of vulnerability. To move from the static perspective to a dynamic and life course perspective of vulnerability, we will consider long-term and short-term dynamics of vulnerability. In Figure 2, the main components of the proposed dynamic model of vulnerability are illustrated.

The heart of Figure 2 is a dynamic resource model derived from Pearlin's (1989) stress model (Pearlin, et al., 2005; Turner & Schieman, 2008). Our contribution is a more explicit integration of social context and the inscription in a life course perspective. Indeed, depending on individual resources, context and their interactions, the potential impact of stress (chronic or critical events) can be quite diverse, from increasing vulnerability (and ultimately death) with trajectories of decline and loss, stability of resources, to growing resources (growth or gains). Accordingly, the process of vulnerability consists of three major components that are measured at an individual level, i.e., resources (availability and capability to use them), stressors, and outcomes. These are entry points of our analysis and useful points for developing a view of vulnerability as a dynamic and evolving process. This microsocial resource model is focused on individual trajectories across time, in which individual outcomes affect an individual's availability of resources and, thus, his/her ability to react to further stresses. Yet, these processes are embedded in specific social contexts (which are also changing at different periods). A promising research area is to investigate the social factors that lead to variability in different social milieu in the availability and distribution regimes of these resources – for example by welfare state, or in different economic or labour sectors, and of course different historical periods. Therefore, we need a more encompassing overall model for enabling a complete perspective on the processes we are interested in.

5.1.1 Resources

Differences in exposure to stress in different social contexts or life domains are complemented by the consideration of intra- and inter-individual differences in response to stressful life conditions. The latter are explained by the individual (or group) ability to adapt by selecting, optimising, and compensating with appropriate resources (Baltes, et al., 1998). Appropriate resources can be analysed in the three large domains of individual development, i.e., biological, psychological and social resources. These resources can vary from money, social status, health, height, personality traits, coping strategies, to social networks or support (Sapin, Spini, & Widmer, 2007). Previous findings on stress and vulnerability (e.g., Serido, Almeida, & Wethington, 2004; Alwang, Siegel, & Jorgensen, 2001; Keyes,

1998) have shown that the extent to which individuals are able to mobilise appropriate resources is a strong indicator of their vulnerability or risk to experience hazardous or chronic stressful conditions. The complementary question of how collective experiences (i.e. discrimination, mobbing, violence, victimization, increasing wealth, etc.) and social context (i.e. regions and countries, urban versus rural, etc.) is essential to tackle in a more systematic way in order to evaluate to which degree what are often analysed in psychology as individual processes are in fact related to collective experiences and reactions (for example collective action). Indeed the collective experiences are both important limits of individual agency, but also resources for collective change and coping (Elcheroth, Doise, & Reicher, 2011).

Moreover, analysing how resources evolve along the life course is an intrinsic component for a dynamic model of vulnerability. In this regard, vulnerability should be considered as a process that is related to changes in various types of “capitals” within the different life domains (work, family and relations, health, etc.) and the confrontation of those individual resources systems with the accidents of life. Following a lifespan perspective (Baltes et al., 1998), trajectories are defined as dynamics of continuity and changes in resources, with related gains and losses (represented in Figure 2 by bigger and smaller boxes of resources at time 2).

In this regard, a decline in resources can contribute to an increase of the level of stress. It is also important to insist that trajectories are potentially multidirectional, as the reversibility of processes is theoretically always possible, at least to a certain extent (with the notable exception of death...).

5.1.2 Stressors

Individuals’ resource trajectories (coping strategies, employment and marital trajectories for example) interact with their environment (stocks of resources, family and labour policies, etc.) (Lawton & Nahemow, 1973), which can be translated as a source of various stressors. Stressors can be categorised into the following three types: (1) major or critical life events that produce observable and objectively reportable life changes, i.e., critical disruptive, normative or non-normative, expected or non-expected life events or life transitions that stress or modify the individual's functioning (Baltes, et al., 1998; Levy & PaVie Team, 2005; Marshall & Bengtson, 2011; Pearlin, Lieberman, Menhagan, & Mullan, 1981; Reese & Smyer, 1983; Shanahan & Porfeli, 2006); (2) chronic strain, i.e., relatively enduring problems, conflicts, and threats arising mainly within the boundaries of social roles and role sets (e.g., role conflicts in the domains family and work, precariousness, poverty); and (3) daily hassles

associated with relatively minor events arising out of day-to-day living with no necessary systematic repetition (e.g., a deadline at work, missing a train, etc.).

Another possibility to consider here is the fact that the absence of expected events may also be stressors (Bernardi, 2012). Dropping out of school, not finding an intimate partner during adulthood, and having difficulties obtaining a long-term work contract may all be “non-events” that can be stressors that are part of vulnerability processes. Indeed, the life course is marked by subjective and social norms about deadlines to be respected in the normal course of life (Neugarten, Moore & Lowe, 1965; Settersten, 2006). A non-completed expected transition, as well as a transition occurring out of schedule, i.e., too early or too late, can be a source of stress.

5.1.3 *Outcomes*

Outcomes of vulnerability processes are situations such as being socially excluded, stigmatised, depressed, frail, poor, etc. To a certain extent, outcomes and resources can be the same thing at different times. Longitudinally, in most cases, the best predictor of a state in one domain is usually the previous state in the same domain. Outcomes are influenced by interactions between resource dynamics and stressors that individuals experience and that affect the resources an individual is able to mobilise to face such experiences. This interaction between resources and stressors moderate the resulting resources, be they in the same life domain or in another. These outcomes, in turn, affect the individual's set of resources for the future and, thus, will subsequently be resources for facing subsequent stressors. We postulate that outcomes are in interaction with the social opportunity and constraints structure, subsequent stressors, and their occurrence. In addition, outcomes of the vulnerability process may proliferate, which means that they spill over from one life sphere to another (Pearlin et al., 2005). However, we must bear in mind the principle of multidirectionality (Baltes, et al., 1998). To be complete, a model of vulnerability should also incorporate factors that protect people from vulnerability or may even convert vulnerability processes into growth, and this is particularly true for long-term trajectories. What can be considered a failure (divorce, failed exams, etc.) or irreversible losses (loss of a close person, becoming handicapped, etc.) at a given time can result in resilience processes, adaptation and even growth.

5.1.4 *Social contexts*

Individual life trajectories are anchored in structural location and time (Settersten Jr, 1999). However, defining what is a relevant social context and how it should be conceptualised is one of the most difficult and less consensual issues within the social sciences (Lahire, 2012). To deal with this question is beyond the scope of the model of vulnerability presented here which is based mainly on life trajectories. We will come back to this issue in a future paper. Here, we only sketch some basic ideas about several principles to take into account in a resource model of vulnerability.

Individuals' and groups' vulnerability to stresses of different types and the probability to overcome difficulties is a function of an interaction with opportunities and obstacles provided by the social environment (Di Prete, 2002; McMullin, 2010). In the introduction, as well as in section 3.2., where we stressed the multidimensionality of vulnerability, we insisted on the importance of biology, psychology and sociology as main disciplines for studying development and vulnerability. However, we must also stress the importance of history in the definition of what is development and growth, who is vulnerable and what is vulnerability.

Vulnerability dynamics are associated with changes in risk structures that affect individuals, groups, and society in different spheres of life (Elder, 1999). Recently, vulnerability has been discussed by various researchers in the context of work, e.g., labour market insecurity (Castel, 2009; Gallie, 2007; Levy, Bühlmann, & Widmer, 2007; Le Feuvre & Latour, 2007; Oris & Ritschard, 2004; Paugam, 2000), and family, e.g., family discontinuities and arrangements (Krüger and Levy, 2001; Lalive d'Epinay, Cavalli, & Spini, 2003), as well as across the family and work spheres (e.g., Moen, 2003; Bernardi, von der Lippe, & Klärner, 2008). In this regard, our various social roles define the fundamental environments that will provide opportunities/obstacles, resources, stresses, and norms. In this regard, it is important, as stated before, to take into account the impact of institutions, public and private organisations in shaping constraints and opportunities (Krüger & Levy, 2001; Leisering, 2003).

6 A general framework of vulnerability from a life course perspective

In a life course perspective, vulnerability can be considered as resulting from long-term processes that can be tracked by following life trajectories and levels of resources at different times. Two main hypotheses have been developed in the life course tradition, the critical period hypothesis and the accumulation of (dis)advantages (for a more detailed development of long-term models concerning health, see Ferraro, 2011).

Different traditions in psychology, sociology and other related fields have asserted that long-term processes are related to early experiences that can result in various forms of vulnerability in later life. The first models that can be synthesised as critical period models come from clinical psychology and dynamic psychology. One of the most important principles of psychoanalysis is that what occurred in childhood and early in life can have long-term effects on the psychological health of a person. In the same vein, attachment theorists (Ainsworth, 1969; Bowlby, 1953, 1999; Grossmann, 2005) and epidemiological models of health across the life course (Davey Smith, 2003; Graham, 2002) also emphasised that early deficiencies during pregnancy or in early childhood can have long-term effects on health in adult life. For example, poor foetal nutrition raises the risk of low weight at birth and increases the risk of hypertension, coronary disease, and stroke in adult life (Barker, 2003) and psychologists have for example hypothesized that attachment in early childhood has a long-term impact on adult types of relationships (for a synthesis see McAdams, 1993), and indeed there are indications that memories of early experiences of attachment play a role in later life (Fraley, 2002).

Dannefer (1987; 1988; 2003) has developed the theory of cumulative (dis)advantages, in which slight original differences accumulated along the life course ultimately result in systematic inter-individual inequalities in a given characteristic (money, status, health, etc.). When individual histories of cumulative disadvantages are experienced by a growing number of individuals and become highly structured experiences, the consequences become visible at the social context level and may result in polarised social structures. Even when social inequalities have not reached polarised and excessive levels in Western societies, such cumulative processes across time are observed in various domains (Ferraro & Shippee, 2009; O'Rand, 1996, 2009). These mechanisms may be conceptualised and studied in particular as a stress process (Pearlin et al., 2005) that encompasses multiple types of mechanisms, which include early experiences and often complex, long-term pathways that research must disentangle. For example, Irving and Ferraro (2006) show that early adversity during childhood compromises personal control, which leads to lower health ratings in adult life. Moreover, they show distinct health consequences for men and women. In the same vein, Turner, Wheaton and Lloyd (1995) show that the accumulation of chronic stress and early adversities is related to both social status and mental health; therefore, social backgrounds are associated with different levels of stress, which in the long run have a negative effect on mental health. Importantly, again, vulnerability is not a given characteristic of particular individuals; rather, it is the result of critical periods and the accumulation of stress across the

life course and is strongly structured by social stratification. These trajectories are then related to social inequalities and institutional violence.

The degree of (in)adequacy and (in-)efficiency of interventions (medical, psychological, social) and policies (publicly provided or based on citizens' activism) to counteract the negative consequences of stress in the long-term is another essential dimension in these processes. This dimension requires exploration. Conversely, we should also pay due attention to the factors (personal, social, institutional) that may avoid, interrupt or counteract such cumulative mechanisms (Di Prete, 2002; Furstenberg, 2005). In this regard, the model of critical period, which is well documented, may have some limitations when interventions are considered. In focusing on birth and early childhood, this model could hide ulterior processes that can deteriorate or compensate early adversity. There is also a possible confusion with merging the two aspects of critical periods and processes accumulation of strengths and weaknesses, which begins forcibly early on, but can hopefully be triggered by later events and interventions.

Inversely, the theory of accumulation of (dis)advantages already considers processes as strongly crafted by the social structure and taking place over a long timeframe. Knowledge about these processes is essential to understand the relationships between life course and vulnerability. To this end, one of the new aims of the life course tradition is to better inform social policies (Marshall, 2009; Mayer, 2009). Long-term processes of accumulation can, indeed, be influenced by prevention and compensation programs and increased knowledge about latent vulnerability processes. However, various literature reviews conclude that there is yet insufficient evidence for cumulative processes and that a numerous model specifications remain untested (DiPrete & Eirich, 2006; Ferraro, Shippee, & Schafer, 2009; Elder, Shanahan, & Jennings, in press).

In this regard, it is of utmost importance to study the impact of normative and non-normative transitions across the life course, i.e., change in a person's profile of participation to the various fields of society (Levy, Joye, Guye, & Kaufmann, 1997). Transitions, whether normative or non-normative, are critical life events that cause stress and processes of coping, and change in levels of resource is frequent. Those questions are closely related to the vivid debates about destandardisation, individualisation or differentiation of the life courses (Levy & Widmer, 2013; MacMillan 2005). Does the timing of these transitions impact individuals' life trajectories differently? Are sequences and accumulation of

transitions, which structures of the life courses possible explanation for vulnerability? These questions, as others put forward by Reese and Smyer (1983), should continue to be systematically studied by life course scholars in different social contexts to better understand how short-term processes related to a given transition may result in processes and causal chains in the longer term. Studies such as that of Warren (2009), which analyses the reciprocal influences of changes in socio-economic status and change in health status and demonstrates that social causation is more likely than health selection, is a good example of advances in the analysis of how changes craft life trajectories and vulnerability across the life course.

7 Conclusion

This paper focused on individual life trajectories and vulnerability to define vulnerability in a dynamic framework. In “risk” or “uncertain” societies, vulnerability is a growing concern for individuals, political leaders and academics (Misztal, 2011; Ranci, 2010). However, vulnerability remains a fuzzy and multifaceted concept in need of theoretical clarification. In the present paper, we show that the life course tradition is a heuristic and integrative framework to understand the processes that lead to vulnerability and allow individuals/groups to overcome it. To do so, we defined a dynamic framework of vulnerability on the basis of four main concepts: resources, stressors, outcomes, and contexts. Using this dynamic framework, we propose a new definition of vulnerability as a lack of resources, which in a specific context, places individuals or groups at a major risk of experiencing (1) negative consequences related to sources of stress; (2) the inability to cope effectively with stressors; and (3) the inability to recover from the stressor or to take advantage of opportunities by a given deadline.

Such a dynamic definition enables us to consider vulnerability as a process and to analyse different stages within this process. Vulnerability can be seen as a latent process of weakening that can remain invisible if no stressful event or symbolic threat appears in the life of the person. Then, if such a stressor arrives, vulnerable individuals will have difficulties in coping effectively with the stressor and manifest outcomes of vulnerability will emerge. The temporal sequence of the vulnerability process can be analysed before, during and after a given stressful event or condition, whether it is due to a long-term accumulation of disadvantages, chronic conditions, stressful events or life transitions.

The analysis of journal article abstracts related to vulnerability (and concepts such as frailty, depression, etc.) between 2000 and 2010 within the life course approach enabled us to answer two main questions concerning the disciplinary divides and the location of main concepts, including vulnerability. First, we found that the psychological and sociological traditions remain separated, as they structured the two poles of the main axis of the correspondence analysis. Demography, as could be expected, was closely associated with the sociological pole. On a third pole, we found the field of gerontology, which appears to have successfully separated the field of ageing studies from the primary social science disciplines. By contrast, youth studies appeared less structured and distinct than the gerontological field according to the results of the current analyses. Thus, the results of the correspondence analysis fully support what Mayer (2009) argued in terms of the need of true interdisciplinarity in the field.

On the second axis, we found different ages of life: childhood, adolescence, adulthood, midlife and the elderly. However, taking into account the contributions of concepts, we found that adulthood was the least researched period in a life course or life span perspective, whereas younger and older ages were heavily studied. Finally, we found interesting results concerning concepts related to the life course, such as vulnerability, that could be associated with risks. The psychological approach appears to give top priority to personality development, stress and coping, and sees depression as the main risk of individual development. By contrast, poverty and lack of social capital were the main risk markers of the sociological analysis of the life course. On the other axis, old age risks were mainly characterised through the concept of frailty. Vulnerability was located in the middle of these three poles but closer to the psychological pole. As such, it seems that vulnerability is an interdisciplinary concept, much more so than the rather disciplinary concepts of frailty, depression and poverty.

Vulnerability, then, does appear to be a travelling concept (Bal, 2002) and linking concept that moves across disciplines. In our interdisciplinary perspective this is a first advantage of this concept compared to others. Moreover, vulnerability appears to be a candidate for studying this period of life given its more central location to the neglected adulthood stage of life, which must be investigated in future research. Overall, vulnerability appears to be a promising candidate for analysing risks along adult life trajectories. We are, however, aware of the criticisms expressed by Ruof (2004) and others about the difficulties arising from the different conceptualisations of vulnerability in various disciplines, impeding an efficient operationalization. Meeting this challenge through a theoretical clarification is the aim of our paper.

The theoretical synthesis we provided first reviewed the concept of vulnerability as a state in an interdisciplinary perspective, primarily including biology, psychology, and sociology. Vulnerability as such should be conceived multidimensionally and in a multilevel articulation between individual resources and social contexts. One main future challenge of interdisciplinary research on vulnerability, along with the relationship between genetics and human development that currently attracts much attention (Shanahan & Boardman, 2009), is to develop a shared definition of social context and how specific contexts are related to the development of vulnerability. Developing a shared theoretical framework of the interaction of social contexts and individual agency remains a central challenge to face in life course research in the coming years.

Notes

¹This paper will use individuals as a basic unit of observation; however, groups also should be related to vulnerability. Vulnerability is related to different levels of analysis and groups or communities are essential contexts of vulnerability. Therefore, vulnerability can apply to interindividual relationships, intergroup relationships, and at the most high level to the societal level. As an example, one can imagine that individuals might be placed at hazards by economic downturns, but some groups would be more protected (less vulnerable) than others. In such cases, an individual member of a group with certain properties (e.g. cohesiveness, strong rather than weak social ties) might be less vulnerable than those in groups lacking these properties.

²Of course there are important international differences in that respect, but common trends can be identified.

³General social sciences journals include multidisciplinary and applied sciences journal abstracts.

⁴Note that life stages are plotted on the graphical representation as supplementary variables, thus having contributions of zero. This also reflects that in a life course and life span perspective, we focus more on dynamics (transitions, life trajectories) than on individuals in particular age-based states such as young, middle-aged, elderly, and old.

⁵We must precise here that we did not consider all the literature in the field of social policies.

Axis 2

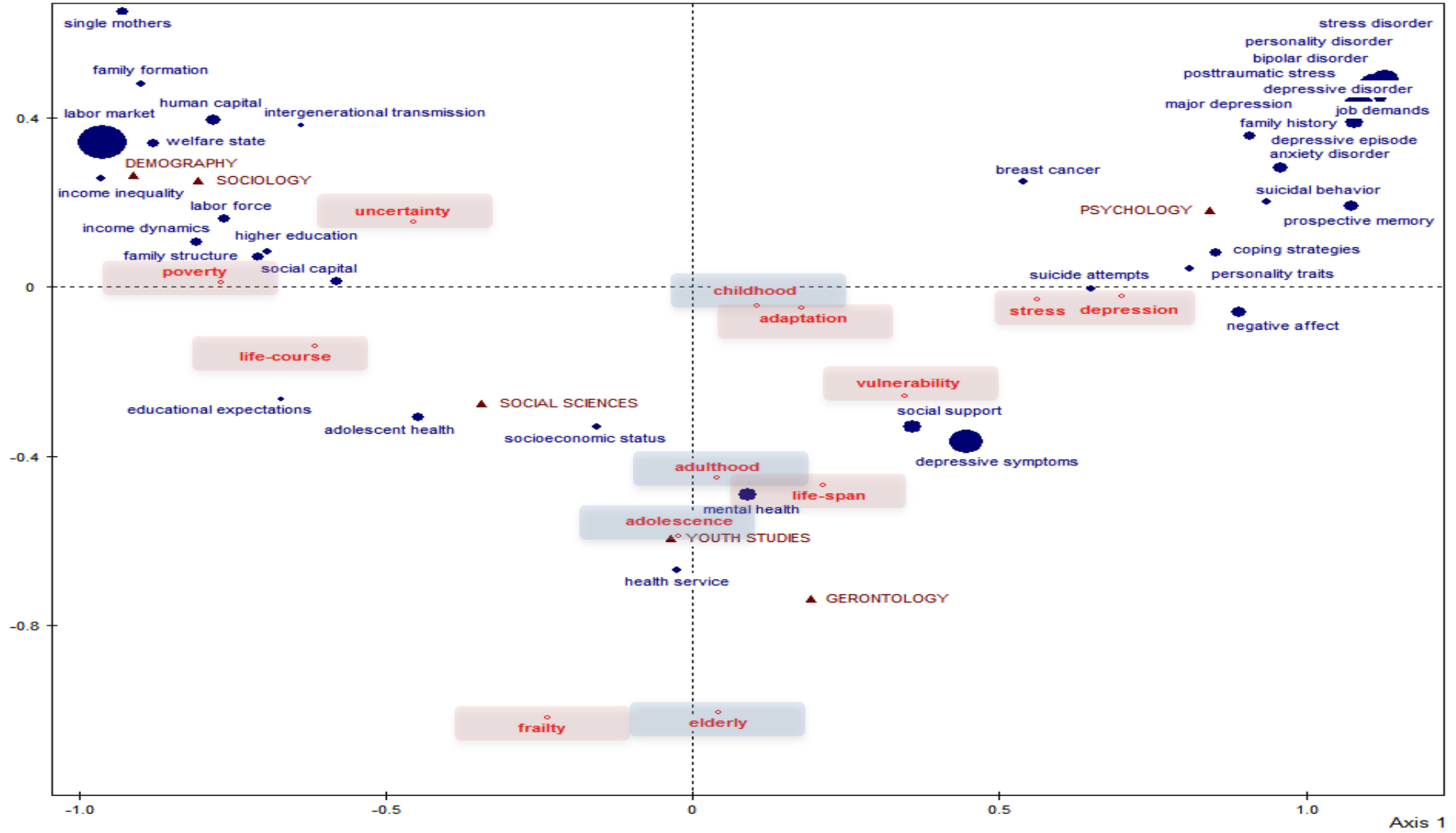


Figure 1: Simultaneous representation in correspondence analysis of disciplines (active column variables) and themes (active row variables).
Note. The blue-boxed elements correspond to supplementary words representing life stages (contribution to the model is 0). The red-boxed elements “life-span“, “ life-course” and the term “vulnerability“ including most frequent related terms e.g. “frailty”, “poverty”, and “uncertainty” are single-word themes of interest and are supplements added to make interpretation easier.

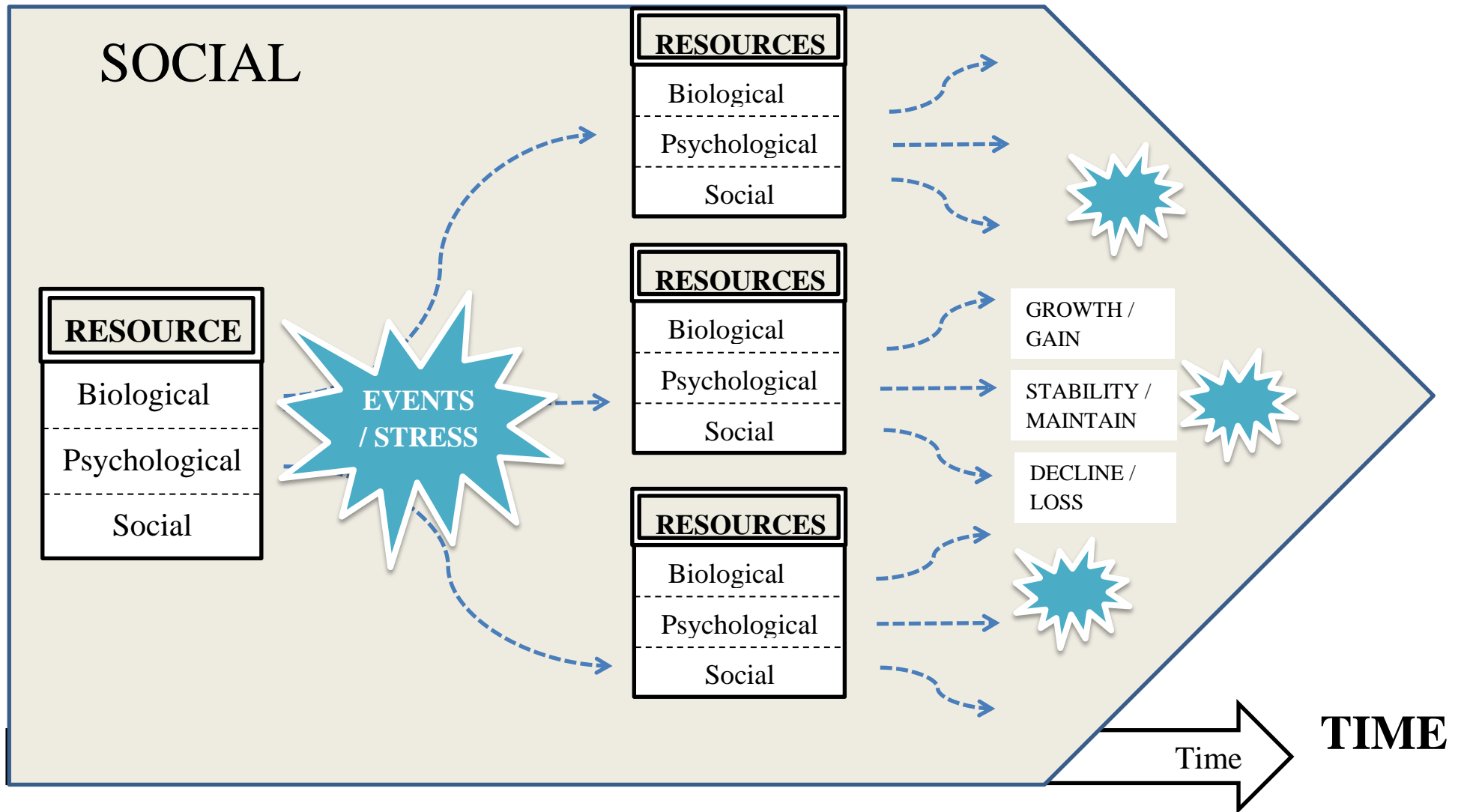


Figure 2: A dynamic model of vulnerability

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