

Vulnerability in Health Trajectories: Life Course Perspectives

Vulnerabilität in Gesundheitsverläufen: Lebenslaufperspektiven

Vulnérabilité dans les trajectoires de santé : perspectives du parcours de vie

Stéphane Cullati*, Claudine Burton-Jeangros**, and Thomas Abel***

1 Introduction

It is now widely acknowledged that the unequal distribution of good health across the population results from the influence of a range of social determinants. These shape often sharply distinct health patterns across and among socially disadvantaged and advantaged groups. This study of health inequalities has been recently re-visited and partly renewed by life course researchers (Burton-Jeangros et al. 2015; Bartley 2016). Life course perspectives aim at providing a more comprehensive understanding of the development of inequalities over time in specific individual health trajectories. Both macro contexts (e. g. historical time and changing cultural representations, economic booms and recessions) and micro contexts (e. g. family situation, working conditions, social networks) influence how health trajectories unfold over the life course and therefore contribute to how health inequalities develop among and across sub-populations. Despite the general expansion of education (Meschi and Scervini 2014) and a partial decrease of gender inequalities (Dorius and Firebaugh 2010) in the second half of the twentieth century, health inequalities continue to grow in many affluent countries (Mladovsky et al. 2009; Mackenbach et al. 2016). Research shows this to be associated with an increase in basic socioeconomic inequalities (e. g. income) observed over the last decade (Duvoux 2017). For a better understanding of these various trends, more research at the crossroad of sociology of health and life course epidemiology is needed (Burton-Jeangros et al. 2015).

* NCCR “LIVES – Overcoming Vulnerability: Life Course Perspectives,” Institute of Demography and Socioeconomics, University of Geneva, CH-1211 Geneva.
Department of General Internal Medicine, Rehabilitation and Geriatrics, University of Geneva, CH-1211 Geneva, stephane.cullati@unige.ch.

** NCCR “LIVES – Overcoming Vulnerability: Life Course Perspectives,” Institute of Demography and Socioeconomics, University of Geneva, CH-1211 Geneva, claudine.jeangros@unige.ch.

*** Institute of Social and Preventive Medicine, University of Bern, CH-3012 Bern,
thomas.abel@ispm.unibe.ch.

2 Life course studies of health

A recent discussion of the classical WHO definition of health (WHO 1946) emphasized the need to adopt a dynamic approach, hence suggesting to consider health as “the ability to adapt and self-manage” (Huber et al. 2011). In empirical research the individual and social patterning of health has so far tended to be only roughly observed, through trajectories categorized with the following taxonomy: “stability” (in good or poor conditions), “decline,” “improvement,” and fluctuations (Colerick Clipp et al. 1992). Nevertheless, this description of empirical patterns has been hampered by the lack of population-based longitudinal data covering the full life course. From a theoretical point of view, the pattern of health trajectories has frequently been described along the following model: (having the best) growing, followed by (longest possible) maintaining and (latest and slowest possible) declining health (Hertzman 1999; Ben-Shlomo et al. 2016). After the development phase associated with childhood, health tends to slowly decline in adulthood (Pinquart 2001; Cullati et al. 2014b), as individuals ageing is often progressively impaired with increasing loss of functional and cognition abilities. Along with biological ageing, patterns of health trajectories are not straight and linear (Halfon et al. 2014; Ben-Shlomo et al. 2016) but fluctuate by individuals’ characteristics and living contexts. Variability of health trajectories is linked with both biological factors, such as genes-environment influences on physiological functions, brain and microbiota developments, and a range of social factors associated with individual life courses that shape these trajectories in an important manner (Vineis et al. 2016). Indeed, the household in which individuals grew up, the schools they attended, the neighbourhoods in which they lived, their socioeconomic conditions in adulthood (McDonough et al. 2005; Cullati 2015), their employment (Stone et al. 2015; Benson et al. 2017) and family histories (Dupre et al. 2009; Benson et al. 2017), the (normative and non-normative) transitions they experienced as well as the different adversities they met during their life, affect chances of growing and remaining in good health. The mutual influences of different life spheres like work and family impact the health trajectories in adulthood (Knecht et al. 2011; Cullati 2014; Cullati et al. 2014a; Knecht et al. 2016), as well as the period and country in which individuals live (Sacker et al. 2011; Burton-Jeangros and Zimmermann-Sloutskis 2016). Individual health trajectories also depend on individuals’ ability to adapt to their living contexts, to cope with stress, such as a stressful psycho-social environment at work (Theorell 2000; Eatough et al. 2016), a poor relational environment in the family (Lehman et al. 2009; Berg et al. 2017), life-time adversity (Seery et al. 2010), and adapt to a health impairment (Cooper and Bigby 2014) or the health impairment of their partner (Berg and Upchurch 2007). A sociological perspective is thus more specifically interested in documenting whether the health trajectories of different social categories (defined for example along gender, social

class or migration background) develop in parallel over time, reflecting a constant gap across these categories, or whether they diverge as individuals age, which would indicate that, along the cumulative dis/advantage model (Dannefer 2003), social processes differently impact individuals as they age, or whether adaptation to the living context vary between these categories.

A challenge for future life course studies is to consider different time processes affecting individual health, such as short-term stressors (e. g. changing jobs, marital breakup, adverse events) versus long-term adverse effects (e. g. living in poor circumstances for several decades). Combining life course models of health trajectories (growing, maintaining and declining) (Hertzman 1999; Ben-Shlomo et al. 2016) with adaptive regulation models (Boker 2015), or short-term regulatory processes (Spini et al. 2016), is a methodological challenge, but it would improve our knowledge of the development of health vulnerability over the life course.

3 Vulnerability and health

Research on vulnerability first developed in environmental science and broadened to research fields like human development, ageing studies, life course and welfare states studies. The concept can account for nations', groups' and individuals' difficulties to handle a specific situation. In life course research, vulnerability has been defined as a lack of resources putting individuals at risk of experiencing negative consequences of stress and thus reducing their ability to effectively cope with adverse events and recover from stress, or to take advantage of opportunities when facing normative and non-normative events or transitions (Spini et al. 2013; Spini et al. 2017). Resources are many in types (physiological, cognitive, relational, economic, social, cultural and institutional) and are theoretically available to most individuals. However, depending on their genetic background and social organization processes, levels of resources are not distributed evenly across individuals living in the same society; such resources are different for individuals living in different societies, as between high- and low-income countries. Furthermore, those inter-individual differences in level of resources can be explained by life course processes, like the Cumulative Advantage and Disadvantage (CAD) model (Dannefer 2003) or the age-as-level hypothesis (Lynch and Smith 2005). In the CAD model, these differences are expected to grow over ageing through rising divergence between the better offs and the worst offs. By contrast, the age-as-leveler hypothesis suggests that higher mortality of disadvantaged individuals reduces inequalities among those who stay alive. The evolution of these inter-individual differences in level of resources will be affected by stressors and shocks (hazards, life adverse events) experienced during the life course, be they chronic or event-based (Wheaton 1994).

In the context of life course studies of health, and in line with the above definition of vulnerability (Spini et al. 2017), we propose to consider that health vulnerability emerges at the articulation of two distinct processes. On one hand, a lack of resources is generating differences in health trajectories between individuals, or groups, over the life course. On the other hand, limited resources hinder recovering from poor or disadvantaged conditions and coping with stressors, and the absence of such compensating mechanisms maintains or even accentuates differences in health trajectories.

Differences in health trajectories can have two patterns. First, in adulthood, it results from an acceleration, earlier start, or a combination of both, of health decline, resulting in a growing health gap between individuals or social groups over the adult life course (Dannefer 2003; Cullati et al. 2014b). Available resources, whether genetic, socioeconomic, relational, or a combination of these, can be determinant in the acceleration and/or earlier start of health decline. Second, differences in health trajectories in middle age or at older age can lie in structural and inter-personal stress exposures in critical and sensitive periods of the life course, resulting in a constant and long-term gap across individuals or social groups in later health trajectories. The life course perspective suggests indeed that a bad start in life, like experiencing adversities (Greenfield 2010; Danese and Tan 2014) or growing up in low socioeconomic conditions, can have long-term adverse health consequences (Wadsworth and Kuh 1997), like poor quality of life (Blane et al. 2004; Wahrendorf and Blane 2015), poor physiological risk factors of cardiovascular disease (Blane et al. 1996), chronic conditions (Blackwell et al. 2001), poor health behaviours (Cheval et al. 2018) and mortality (Hayward and Gorman 2004; Galobardes et al. 2008). Adversity during adulthood, such as poor work and unstable family conditions, also result in poor health outcomes later: single motherhood from young adulthood to middle age (Berkman et al. 2015) and poor mid-life occupational conditions (Platts et al. 2015) for example, have been shown to be associated at older age with reduced quality of life and negative health outcomes, including accelerated health decline. During old age, social participation is associated with lower mortality (Holt-Lunstad et al. 2010) and with improvement in self-rated health (Ichida et al. 2013), while social network ambivalence is linked with cardiovascular reactivity (Uchino et al. 2001), and negative emotional support from family or friends impairs self-rated health (Craigs et al. 2014). All these mechanisms confirm the delayed impact on health of vulnerable circumstances encountered at different stages of the life course.

Along with structural advantages and disadvantages, the life course perspective also emphasizes the role of “linked lives” in the development of health vulnerability. Indeed, between individual circumstances and macrosocial environments, the unfolding of health trajectories need to be considered in the meso-level context of families. Individuals live in interdependence or in networks of shared relationships. Persisting inequalities between women and men in the labour market reflect the

interdependence of their life histories, especially in the family unit (Drobnic and Blossfeld 2004). Individual trajectories are constantly connected with the ones of other family members, in relational patterns that can be either favourable or detrimental to health circumstances. However, the framing of respondents' life by their partner's characteristics has so far been largely neglected by the life course research in general (Bird and Krüger 2005), and in life course epidemiology in particular.

4 Contemporary societies and accumulation of disadvantages

In societies characterized by individualization and diversity of lifestyles (Giddens 1991), biographic risks (Beck 1992), and gender de-standardisation of occupational careers (Levy and Widmer 2013), the interplay of agency and structures is of particular importance, as one of the life course principle (Elder 1998). Sociological conceptualizations of agency and structure can contribute to our understanding of the processes by which inequalities in health trajectories occur over time and how social factors (i. e., socioeconomic position, working conditions, marital and family lives, lifestyles, gender, migration, discrimination) impact on health trajectories (Abel and Frohlich 2012). Agency can hamper development of health vulnerability over the life course. For example, the impact of physical activity has been shown to reduce mortality as much as medical drugs (Naci and Ioannidis 2013). Individuals may impact their cognitive ageing by endorsing either supportive (learning, exercise and sexual activity) or detrimental (sleep deprivation, alcohol consumption) behaviours (Shors et al. 2012). Alternatively, agency can accelerate health vulnerability, such as when compliance to misleading social norms result in bad life course outcomes (Widmer and Spini 2017), like when endorsement of risky health behaviours is a marker of social acceptance.

Simultaneously, structures can provide, or not, to individuals the resources and opportunities they need to live a healthy life. Educational and health care systems, family, work and housing policies, social security all influence life course trajectories, offering to individuals resources at different stages of their life and thus affecting their chances of staying in good health as long as possible. Socially disadvantaged groups are structurally positioned in unfavourable conditions in society (e. g. poor working and housing conditions) and have less material and non-material resources to cope with the adversities of life. Such structural disadvantaged positions put them at higher risk of experiencing health decline earlier in their life course or at a faster rate of decline. The accumulation of such difficulties is associated with health risks that are themselves a potential source of non-normative transitions such as job loss or divorce due to poor health conditions. Considering the social determinants of health in a life course perspective particularly emphasizes the crucial role of social protection regimes as mechanisms that protect most vulnerable categories from the

new social risks generated by current arrangements in regard to work and family lives (Ranci 2010).

5 Contributions to the special issue

This special issue gathers six empirical papers based on either quantitative or qualitative data, representing a range of European countries. Papers are either single-country studies (Switzerland, France, Germany) or multi-country studies, using the Survey of Health, Ageing and Retirement in Europe (SHARE). Three papers are population-based cohort studies (one of teenagers, two of older people) and three are studies of sub-groups populations (children following an obesity management programme, survivors of childhood cancer and young adults with mental disorders). Two papers use non-research databases (administrative data or medical records) and two use self-reported retrospective data. Finally, two studies empirically tested the CAD hypothesis (Dannefer 2003). Contributions in this issue are organised following the chronological life course, from childhood to old age.

The first article, written by *Andrea Lutz* (in French), is an ethnographic study of obese or overweight children and their parents following a paediatric obesity management programme in a Swiss tertiary hospital. Families were recruited at the beginning of the programme and data was collected through interviews with the family and observations of medical consultations. The author explored the association between the family social position and the compliance with medical recommendations. Acceptance or resistance with medical recommendations was assessed at the beginning of programme and a few months later. Results showed that compliance with medical recommendations increased for all children. A gradient between socially advantaged and disadvantaged families was observable before the programme and remained stable over the course of the programme. Among disadvantaged families, lack of financial resources was perceived as a barrier in adopting a healthy diet. Families with high educational levels were more familiar with nutrition and physical activity recommendations compared to family with low educational backgrounds. The author interprets these results in the light of the theory of habitus of Pierre Bourdieu, explaining the differential internalisation of medical recommendations by social positions.

The article of *André Berchtold et al.* examines individual trajectories of somatic complaints from the age of 16 to 30 a cohort of 1 161 young adults living in Switzerland. Somatic complaints included minor health symptoms, like headaches, stomach aches, sleep disturbance, lack of appetite, lack of concentration, vertigo, nervousness and fatigue. The prevalence of somatic symptoms among those young adults increased over time and frequency of symptoms was associated with future life milestones achievement. Using data from the Transition from Education to

Employment study (TREE), Berchtold and colleagues aimed at identifying patterns of somatic complaints trajectories and at assessing if these patterns are associated with socio-economic and critical life events factors. They build sequences of somatic symptoms and clustered them, using a hidden mixture transition distribution model. Based on indices of fit and a combination of covariates influencing the probability of belonging to a cluster, a final model with five groups was discussed. The clusters are characterised by the variability of somatic complaints over time and average scores of somatic complaints. These groups were distinct at study baseline and remained distinct during the whole study follow-up. They were associated with gender, educational achievement and the experience of critical life events. Berchtold and colleagues also showed that higher consumption of tranquilisers and sleeping pills was associated with higher overall somatic scores. As these groups of somatic complaints trajectories were already distinct at the age of 16, it suggested that adolescents with poor somatic complaints trajectories were experiencing a situation of vulnerability before inclusion in the study, i. e. before adolescence, and that these conditions continued throughout adolescence and young adulthood. Differences between trajectories were largely influenced by early experiences and less by transitions (entry to the labour force, founding of a family life) and life events taking place over the course of young adulthood. Berchtold et al.'s findings contribute to the understanding of health vulnerability by showing that the onset of somatic complaints is linked with early-life, thus providing preliminary evidence that supports the critical/sensitive period model (Kuh and Ben-Shlomo 2004).

The article by *Isabel Baumann et al.* focuses on employment of young adults with mental disorder living in Switzerland. Following the CAD hypothesis (Dannefer 2003), the authors expected that an early onset of mental disorders would be more strongly and negatively associated with employment prospects compared to a later onset. They also expected handicapped children benefiting from special needs education to be more likely to find a job than those attending regular education. Using data from the Swiss Federal Social Insurance Office, they examined the association between educational trajectories, educational attainment and type of diagnosis (externalising vs. internalising problems) and being currently employed. Baumann et al. showed that special needs education for adolescent with mental disorder was associated with being currently employed, independent of educational attainment. Special needs education may protect individuals from the potential adverse effects of the social norms defined by the school system and the labour market and thus channel individuals into future sheltered vocational training programs and sheltered employment. Special needs education may thus, be a protective factor against the development of health vulnerability, by maintaining educational and relational resources of individuals. The authors also found that onset of mental disorders in late adolescence or young adulthood was associated with a higher risk of being unemployed compared to individuals diagnosed in childhood and adolescence. This

initial result needs to be confirmed with new research using effective age of onset of mental disorder (such information was not available to the authors). Last, the authors found that both types of mental disorders (externalising vs. internalising problems) were associated with being unemployed.

The article of *Agnès Dumas* is a qualitative study of a cohort of 80 childhood cancer survivors living in France. Using in-depth interviews with patients diagnosed between 1970 and 1985 and aged 36 years (average) at the time of the interview, the author assessed patient's perceived long-term impact of cancer and their coping strategies, how the cancer was incorporated in their identity and how cancer was discussed with their family, friends, children and significant others. The objective was to assess gender differences in health-related beliefs and stereotypes. First, the author showed that cancer was surrounded by a lack of family communication when participants were children, explained by the medical context of the 1970s and 1980s where priority was given only to patient survival, not patient communication. Reactions to this silence was different between men and women: men were satisfied with it while women wanted to have known more. Second, men displayed more frequently than women a passive attitude toward their treatment (e. g., avoidance of or delay in medical follow-ups), and were more reluctant to seek medical care. This result was in line with the existing literature on social norms of "masculinity" and confirmed the view that men living with cancer are more likely to prioritize the preservation of their health than to the preservation of their "masculinity," or male identity. According to Dumas, reluctance to undergo medical surveillance reflected compliance of male cancer patients with the "hegemonic masculinity" norm, despite having a risk of cardiovascular mortality eight times higher compared to the general population. Dumas' contribution to the understanding of health vulnerability is double: first, it shows that health vulnerability is embedded in an historical context, i. e. here a period that preferred a lack of communication about cancer; second, agency is a driver of health vulnerability, through conformity to misleading norms (Widmer and Spini 2017), i. e. "hegemonic masculinity" in the present case, that results in noncompliance with medical recommendations.

The article of *Valérie-Anne Ryser et al.* studies the association between health status and life satisfaction in the second half of life, to assess whether individuals who experience low levels of life satisfaction are also more likely to be in poorer health status, suggesting a potential accumulation of disadvantage (Dannefer 2003). The study was based on the SHARE database, waves 2 and 4 (treated as cross-sections), including 12 countries, and tested health-related inequalities with the concentration index. To order participants from worst to best health status, the authors build a continuous latent health index based on 32 health indicators. The analysis was conducted separately by country. Findings allowed identifying that the most vulnerable groups were those for whom disadvantages in life satisfaction and disadvantages in health status and other covariates cumulated. For example, higher life satisfaction

was concentrated among respondents with better health status; poor life satisfaction was concentrated among women, unmarried participants, and those with poor adaptation processes, and in all countries, but with large variations. The contribution of Ryser et al. provides support to the CAD hypothesis in that individuals with health disadvantages also report poor life satisfaction. The large inter-countries variation in the association between health status and life satisfaction suggests implementing national policy interventions, and support the life course perspective emphasizing the role of context in the study of health vulnerability.

The article of *Nadine Reibling et al.* examined the role of fertility history on health status at older age and whether this association varied across 13 European countries. Authors used the SHARE database and three indicators of health (number of chronic conditions, self-rated health and depression). Findings suggest that parenthood and the number of children was weakly associated with health in later life, in contrast with the timing of the first child which was strongly associated with health. However, the pattern of the association was u-shape: delaying first childbirth until 30 years was good for health, while it became detrimental after 35 years, in particular for women. Findings also show a differential effect by cohort: timing of first birth became less important for later health in younger cohorts. Finally, wide variation between welfare regimes were observed. Among women, the association between fertility timing and health was weak in Eastern and Southern countries and strong in Continental and Scandinavian countries. Among men, the association was strong in Continental countries only, otherwise timing was weakly associated with their health status. Reibling's paper brings a contribution to the importance of timing in normative transitions, and supports the hypothesis of sensitive periods (Kuh and Ben-Shlomo 2004). It also emphasises the importance of time and broader national contexts in understanding the potential benefits of timing of first birth.

The papers of this Special Issue show the potential of adding a life course perspective to health inequalities research and to the study of health vulnerability. Adopting a dynamic definition of health adds an important dimension in the understanding of how societies produce specific patterns of health across social categories. The issue also confirms the importance of combining qualitative and quantitative research to assess the complex mechanisms that articulate life circumstances, the experience of critical events and health trajectories over the whole life course.

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Jean Michel Bonvin
Stephan Dahmen (dir./Hrsg.)

Reformieren durch Investieren?
Chancen und Grenzen des
Sozialinvestitionsstaats in
der Schweiz

Investir dans la protection
sociale – atouts et limites pour
la Suisse

Mit Beiträgen in deutscher und französischer Sprache.
Avec des contributions en allemand et en français.

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L'Etat d'investissement social se présente comme une stratégie de réforme de l'Etat social en vue de répondre aux nombreuses critiques auxquelles il est actuellement soumis. La conversion des États sociaux européens à l'investissement social vise ainsi à restaurer leur légitimité et à relever les défis démographiques et économiques posés aux États sociaux contemporains. Suivant les partisans de cette conception, la réorientation des dépenses sociales vers l'investissement dans la formation et le développement du capital humain – notamment en facilitant l'accès à l'emploi, en accroissant les investissements dans les enfants et en privilégiant une nouvelle conception de la politique sociale comme facteur productif – permettra de réduire les inégalités sociales et de contribuer à la viabilité des États sociaux contemporains. Cet ouvrage examine la forme prise par l'investissement social en Suisse et les effets qui en résultent. Il discute de manière analytique et critique les fondements idéologiques et les implications pratiques de la stratégie de l'investissement social.

Jean-Michel Bonvin est professeur ordinaire de sociologie et de socioéconomie à l'Université de Genève, *Stephan Dahmen* est chargé d'enseignement et doctorant à la Faculté des Sciences de l'éducation de l'Université de Bielefeld.

Als Antwort auf den zunehmenden Druck, mit dem sich der Sozialstaat konfrontiert sieht, hat sich das Konzept sozialer Investitionen als Reformstrategie entwickelt. Der sozialinvestive Umbau europäischer Wohlfahrtsstaaten verspricht sowohl Antworten auf drängende Legitimationsfragen als auch auf gegenwärtige demografische und ökonomische Herausforderungen des Wohlfahrtsstaates zu liefern. Die Neuausrichtung der Ausgaben des Sozialstaates auf Investitionen in Humankapital, etwa durch die Verbesserung des Zugangs zu Beschäftigung, den Ausbau der Investitionen in Kinder und eine konsequente Neubestimmung von Sozialpolitik als Produktivfaktor ermögliche es sowohl bestehende soziale Ungleichheiten zu reduzieren als auch die Nachhaltigkeit moderner Wohlfahrtsstaaten zu gewährleisten. Welche Ausprägungen hat das Sozialinvestitionsparadigma in der Schweiz angenommen und welche Auswirkungen ergeben sich aus dem sozialinvestiven Umbau des Sozialstaates? Das Buch liefert eine kritische Analyse und diskutiert die ideologischen Grundlagen und praktischen Implikationen sozialer Investitionen.

Jean Michel Bonvin ist Professor an der Fachhochschule Westschweiz (éesp) Waadt und Lehrbeauftragter an der Universität Genf. *Stephan Dahmen* ist Lehrbeauftragter und Doktorand in Erziehungswissenschaften an der Universität Bielefeld.