

LIVES Working Paper 98/2023

Concentration of Critical Events Over the Life Course and Life Satisfaction Later in Life

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RESEARCH PAPER

<http://dx.doi.org/10.12682/lives.2296-1658.2023.98>

ISSN 2296-1658

Abstract

Critical events create turning points, disrupt individuals' life courses, and affect well-being. We investigated how the co-occurrence of critical events and their concentration in time influence life satisfaction in later life. Periods of life densely populated with critical events may translate into an acute resource drain, affecting long-term wellbeing more strongly than if the same events were sparsely distributed. To do so, we construct a novel indicator, the Concentration Index, based not only on the number but also on the time lag between occurrences. Using retrospective information on critical events in family, work, health, and residential trajectories in Switzerland, we show that the higher the concentration in time of critical events is, the stronger their negative long-term effect on wellbeing will be, net of sociodemographic characteristics, the total number of events ever experienced, and the time since the last event. Furthermore, we show that the occurrence of positive events does not compensate for the loss in wellbeing driven mainly by negative events. On the contrary, at moderate and high levels of concentration of negative events, the concentration of positive events further reduces life satisfaction. Relevant gender differences emerged with stronger negative effects on wellbeing among men. Our work clearly shows that simply counting the number of events gives only a partial and potentially inaccurate measure of complexity of life course and its relationship with quality of life. Not only how many events experienced matter but also the spacing between them.

Title

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Keywords

- > Subjective wellbeing
- > Critical events
- > Concentration
- > Life course
- > Gender

Acknowledgments

This work was part of the WELLWAYS research project funded by the Swiss National Science Foundation (PI: Bernardi and Voorpostel – SNSF Grant n. 100017_182301). We are extremely grateful to the SNSF for the financial support. The project profited from the research environment of the National Center for Competence in Research LIVES (SNSF 51NF40-160590). Danilo Bolano acknowledges financial support for his research time from the project DisCont—Discontinuities in Household and Family Formation (ERC Grant no. 694262). This study has been realized using data collected by the Swiss Household Panel, which is based at FORS—the Swiss Centre of Expertise in the Social Sciences. We would like to thank the WELLWAYS Advisory Board and in particular Maike Luhmann for the useful comments on earlier versions of the study, and Daria Mendola, Annalisa Busetta, and Giovanni Luca Lo Magno whose work was inspiring ours and for the precious discussions during the necessary adaption of their index to the purposes of this paper.

1. Introduction

Critical events or stressors induce readjustments in people's behaviors and routines (Dohrenwend, 2006) or adaptations to new social roles (Hopson & Adams, 1976). These events do not necessarily represent traumas or negative events *stricto sensu*, but events that force individuals to adjust to new circumstances or statuses (Dohrenwend et al., 1978; Pearson, 2010), such as becoming a parent or going into retirement. In this study, we investigated how the co-occurrence of critical events and, in particular, the concentration in time of events across the life course influence life satisfaction in later life, introducing a novel indicator of event concentration.

Voluminous and long-standing literature has documented the extent to which critical events influence subjective wellbeing (SWB; Dohrenwend & Dohrenwend, 1974; Hentschel et al., 2017). Most studies have focused on the wellbeing consequences of one event in isolation or multiple events in one given life domain. However, a central principle of life course theory is the multidimensionality of biographies: Life domains are interdependent, and life events occur not in isolation but in a configuration of related trajectories (Diewald & Mayer, 2009). Critical events from different domains often co-occur (Thomas, 2018), making it difficult to isolate the impact of single events, especially over a lifetime (Seery et al., 2010). The focus on responses to single events, although it allows for deeper investigation of an event's impact, gives a decontextualized view of each event within its biographical context and obscures the fact that the accumulation and concentration of multiple events may have important additional effects (Comolli et al., 2021). In addition, stress proliferation theory emphasizes that exposure to one stressor may lead to exposure to other stressors over time, resulting in life course phases crowded with critical events that potentially could disrupt lives (Pearlin, 2010).

This study investigated the long-term effects of the concentration of events over the life course on SWB. Few longitudinal studies have compared the impact of given life events on SWB in the context of a wide range of other events. Most of such studies focused on the psychological mechanisms of anticipation or adaptation (Anusic et al., 2014). The assessment of cumulative adversity has typically involved counts of negative events experienced over a given period (Frijters et al., 2020; Wheaton & Clarke, 2003). The extent to which different distributions of critical life course events across time have differentiated long-term effects remains largely unmeasured.

We argue that life phases densely populated with critical events may cause an acute resource drain and affect wellbeing more strongly than if the same events were sparsely distributed over the life course. We propose a novel indicator of the concentration of events in individuals' histories, the Concentration Index (CI), that allows us to assess more rigorously the impact of a lifetime concentration of critical events on SWB later in life. We argue as well that even transitions that are normally benign (e.g., childbirth) may become stressful if they take place in close temporal proximity to multiple other transitions. To test this, we first pooled all events and then investigated the role of the concentration of theoretically negative and positive occurrences and test their interaction in shaping SWB. Finally, we analyzed heterogeneities in the relationship between concentration of events and SWB by gender. On the one hand, the process linking life events concentration to wellbeing is likely to be gendered: not only life course trajectories differ by gender, but women's life courses

are characterized by greater entropy than men's (Widmer and Ritschard, 2009) and life domains are generally less reconcilable for women (Keizer et al., 2010). On the other hand, women are found to be more resilient than men in late life after the experience of critical events, such as partner's death (Koren, 2016).

We exploited the complete retrospective biographical information on life events in multiple domains (family, work, health, and residence) collected in the 2013 wave of the Swiss Household Panel (SHP) to investigate lifelong associations between the concentration of events over the life course and life satisfaction later in life. Our CI innovatively takes into account not only the overall number of events ever experienced, as previous studies did, but also the time lag between them. This study contributes to life course and wellbeing literature with an original assessment of whether and the extent to which the concentration of critical events during the life course affects SWB later in life.

2. Background

Critical events are occurrences of sufficient magnitude that they challenge people's adaptive capacities (Pearlin, 2010, p. 208), bringing about a readjustment of individuals' activities and a major change in their statuses or social roles (Dohrenwend et al., 1978; Park, 2010). Critical life events are distinct from short-term fluctuations in life circumstances (e.g., income variations) because the latter do not involve a status or role change. Critical life events are also distinct from developmental transitions (e.g., to adulthood) because the latter unfold over longer periods and are not time discrete (Luhmann et al., 2012). Bereavement, health issues, childbirth, marriage, union dissolution, migration, job loss or retirement are hence examples of critical life events in different domains.

A rich literature has documented that critical life events are related to wellbeing (Hentschel et al., 2017; Yap et al., 2014). Many studies have supported the notion that people adapt to life changes (Brickman & Campbell, 1971; Clark and Georgellis, 2013; Powdthavee, 2009) and that most life events affect wellbeing only in the short-term (Diener et al., 2006; Lykken & Tellegen, 1996). Other studies have shown that the effects of major life events on wellbeing can instead persist over several years (Lucas, 2007). Most studies on critical life events and SWB have focused on one type of event at a time (Booker & Saker, 2012; Demey et al., 2014). Such studies have shown that a longer duration or persistence of some events or statuses generally results in a greater reduction of wellbeing (Lucas et al., 2004); similarly, the recurrence of some types of events has been shown to have cumulative negative effects on wellbeing (Clark et al., 2008; Frijters et al., 2011; Luhmann & Eid, 2009). In unemployment research particularly, the timing and recurrence of events has been shown to affect mental health and wellbeing in the long-term and even net of other more proximal determinants of wellbeing outcomes (Ponomarenko, 2016; Wheaton & Reid, 2008).

Treating each (kind of) event separately undoubtedly allows researchers to focus more deeply on each event's impact on the life course. However, this gives a decontextualized, partial view (Thomas, 2018). Events vary by their individual properties, like valence (positive or negative) and domain (e.g., family, health, work) but also in terms of structural properties, like number, timing, and dispersion over the life course (Lindeboom et al., 2002). In their meta-analysis, Luhmann and colleagues (2012) found that an important confounder in many longitudinal studies on the relationship between a given critical life event and SWB is the way these

studies treated other concurrent events. Stress proliferation literature has highlighted that exposure to one stressor may lead to exposure to other stressors, exacerbating the negative consequences for wellbeing (O’Rand, 1996; Thoits, 2010).¹ Few studies in social psychology have investigated how the effects of clusters of adversities differ from those of single events (Kessler et al., 1997; Raposa et al., 2014). Although with varying strength depending on the type of clustered events, the effects of single isolated events are considerably attenuated once the clustering of multiple adversities is considered. Moreover, the effects of concurrent critical events on mental health and wellbeing appear to be multiplicative and not simply additive (Kessler et al., 1997). These studies also have shown the presence of cumulative effects over the life course: Clusters of early childhood adversities predict later experiences of stressful events, resulting in a compounded negative effect on young adults’ mental health (Raposa et al., 2014; Rindfuss et al., 1987; Turner et al., 1995).

Critical events can be, and often are, coupled together. There are events that prompt another event, such as a residential move following retirement, divorce, or childbirth (Clark, 2016; South et al., 1998; Weitzman, 1985). Economic strain and family conflict often follow involuntary job loss (Pearlin et al., 1981) so that a job loss can lead to marriage dissolution (Charles & Stephens, 2004; Di Nallo et al., 2022; Sayer et al., 2011). Such critical events could also occur independently but successively within a given short time frame.

Co-occurring critical events can belong to the same or to different life domains and can have the same or the opposite valence. One could probably define the vast majority of positive events as, first, desirable and second, expected, namely being episodes consistent with normative expectations and characterized by a certain degree of predictability. Yet, the valence of many events can be ambiguous. Although occurrences such as marriage or childbirth tend to be identified as positive and others such as divorce or job loss as negative, identifying a priori the valence of events can be challenging (Kettlewell et al., 2020). For instance, despite the positive valence of marriage, Holmes and Rahe (1967) identified marriage as the sixth most stressful event in the life course. Similarly, the issue of whether childbirth increases parents’ life satisfaction has been debated at length (Aassve et al., 2012; Myrskylä & Margolis, 2014). Moreover, the valence of events may change over time and it is not necessarily constant over the life course (Balbo and Arpino, 2016).

Suh and colleagues (1996) showed that good and bad events are actually more likely to occur together than apart in the course of life. Individuals who experience more negative events also tend to experience more positive events, and events of opposite valence also tend to co-occur close in time within each individual’s life course. Engaging in details with the literature on the heterogeneous effects of good and bad events on SWB goes beyond the scope of this study, which starts from the premise that any kind of critical event is potentially stressful if co-occurring with others; however, since we will test the validity of our assumption later in the study, it is worth mentioning that events with opposite valence may theoretically compensate for each other in influencing SWB and the concentration of positive events may be positively related to SWB. Yet, the evidence supporting this argument is contradictory. Although taken independently, negative and positive events have been shown to influence wellbeing asymmetrically, with negative events reducing it and positive events (more

¹ This resembles the ideas of a chain reaction within a life trajectory (Wheaton & Gotlib, 1997), of clusters of adversities (Kessler et al., 1997), or a “cascade of instability,” in which one event prompts another (Thomas 2018).

weakly) increasing it (Boyce et al., 2013; De Neve et al., 2018; Kahneman & Tversky, 1979; Vendrik & Woltjer, 2007), the evidence on the interplay between good and bad events is mixed. Positive occurrences seem to buffer the effects of negative events only on some negative psychological outcomes (e.g., stress and depression) but not to moderate the influence of negative events on positive affect or SWB and only among the most vulnerable individuals who experience a large number of adversities (Longua et al., 2009; Nezlek & Plasko, 2003; Reich & Zautra, 1981). Positive events may also have negative effects if they are unexpected (Reich & Zautra, 1981). Moreover, the post-traumatic growth literature posits that growth is more likely to occur after adverse events than after positive events, although again the evidence is mixed (Luhmann et al., 2021; Mangelsdorf et al., 2019).

Few studies have compared the impact of life events on SWB longitudinally in the context of a wide range of other events. Kettlewell et al. (2020) investigated the relative impact of specific events on wellbeing, conditional on the occurrence of other events. Their main finding was that some events, such as being fired or getting promoted, have little independent effect on wellbeing, whereas others, such as widowhood or childbearing, influence wellbeing regardless of whether other events co-occur. However, Kettlewell and colleagues did not investigate the effects of the overall dispersion of events but focused on singling out the impact of each event on wellbeing, net of additional events happening at the same time. In addition, their study focused on SWB fluctuations in the years around the event and not on the long-term effects of the co-occurrence of events.

Seery et al. (2010) investigated how lifetime adversity, measured as the number of negative events experienced during life (in the health, finance, relationships, family, and work domains), influences life satisfaction. Their study demonstrated that the association between lifetime negative events and SWB later in life is quadratic, following an inverted U-shaped pattern: Individuals who experienced an average number of negative events reported higher wellbeing compared to both those who experienced a large number and those who experienced zero negative events or low adversity. The authors referred to Dienstbier's (1989, 1992) theory emphasizing that regular exposure to adverse events followed by adequate recovery periods promotes the development of mental toughness, namely a greater capacity to deal with future stressors. The argument of spacing between multiple critical events is thus crucial (Thoits, 1983) but in Seery et al. (2010), remained untested.

A study by Frijters et al. (2020) investigated the effects of the clustering of negative and positive events on life satisfaction in the short and medium terms. As in earlier studies, the authors measured the concentration of events as the number of occurrences within a 2-year window. They found that net of a selection process and the anticipation of, and adaptation to the events, the greater the number of negative events in the last 2 years was, the more negative the impact was on SWB. In contrast, the greater the number of positive events was, the lower their joint beneficial effect on life satisfaction.

3. This study

3.1 Research Hypotheses

In the relatively few studies conducted on the relation between multiple life events and wellbeing so far, clusters of critical events have generally been measured through the simple counting of events, which is not ideal for measuring the *distribution* over time of co-occurring critical events, especially over a long period. Our study instead built on a novel indicator of individuals' overall histories of events to assess more rigorously the impact of a lifetime concentration of critical events on life satisfaction later in life. The CI innovatively takes into account not only the overall number of events ever experienced, as previous studies did, but also the time between them and, potentially, also the recovery time between events, their recentness and the number of domains involved at each time. Our study is the first to assess how the lifetime concentration of critical events in a relatively crowded life course section lowers SWB later in life. *First, we hypothesized that a greater concentration of critical events is negatively associated to SWB later in life and that this effect holds independently of the number of total events ever experienced and their recentness (H1). Second, we hypothesized that the concentration of events is detrimental for SWB irrespective of the valence of events, namely that both the concentration of positive and negative events is negatively correlated with life satisfaction (H2). Finally, we hypothesized different associations between the concentration of critical events in the life course and SWB later in life among men and women (H3) with women more resilient than men when events are concentrated in time.*

3.2 Data and Measures

Our data came from the SHP, an ongoing rich longitudinal representative survey of households in Switzerland that has run for 21 waves (1999–2019). In 2013 the SHP collected complete retrospective information on life events in various domains. In practice, the respondents completed a roster (a life calendar) listing the events they had experienced since birth. They then completed the annual individual questionnaire, including the measurement of wellbeing, in subsequent waves (as of 2014). From the initial sample of 6,090 individuals who filled in the biographical life calendar in 2013, we selected adult men and women aged 15–65 years at completion of the life calendar (5,793 participants). Of them, we kept those who responded to the life satisfaction question in any of the 2014 to 2017 waves and took the wellbeing measure from the first available wave. We dropped 38 respondents with missing data on basic demographic information (getting us to 3,493 participants). Finally, we kept individuals who had experienced at least two events in their adult lives (around 90% of respondents did) because, by definition, the concentration of events cannot be measured with zero or one event only. The final sample was composed of 3,192 individuals (1,444 men and 1,748 women) who were retrospectively observed, the longest for 51 years. The resulting final age range in the sample was 18–65 for both men and women.

The life calendar allowed us to reconstruct entire biographies on family life, work, health, and residential mobility² and to construct a measure of the lifelong concentration of critical events. We considered the following as critical events. In the family domain we included parental marriage or union, parental divorce, separation or remarriage, birth of siblings, death of parents or other relatives, respondents' own marriage or

² For the health and family domains, the respondents have to identify what qualifies as an important event to them. For each year, the respondents could report multiple family life events, multiple residential moves, and/or multiple health issues. For the work domain, they can report only one event (e.g., job loss) per year.

union, own separation or divorce, childbirth, and loss of a child. Events in the work domain included entry into full-time work (from education, unemployment, or part-time work), entry into and exit from unemployment (into part-time work or education), and retirement. Events in the health domain were any accident, illness, or surgery and mental health issues. Finally, we counted any residential moves within Switzerland or from or to abroad. Table A1 in the Appendix provides a detailed distribution of these events. We categorized events by valence based on theoretical assumptions and following previous studies (Kettlewell et al., 2020), although, as mentioned, no classification is without flaws. We considered the following events as negative (39% of all events): health issues (with 29%, the most common type of event), separations and divorces (own or parents’), bereavement, entry in unemployment and any move from full-time to part-time work, thus assuming the latter is involuntary. Positive events (34% of all events) are births and marriages (own or parents’), retirement, and any move from joblessness to employment and from part-time to full-time work. Residential moves (27% of events) were excluded from the analyses by valence, as their classification as positive or negative would be too arbitrary.

Information on our dependent variable, wellbeing, came from subsequent panel waves (2014-2017). We measured SWB with life satisfaction, which was reported on a scale from 0 (*not at all satisfied*) to 10 (*completely satisfied*) and for which the question was formulated as follows: “In general, how satisfied are you with your life if 0 means ‘not at all satisfied’ and 10 means ‘completely satisfied’?”

3.3 Concentration Index (CI)

Our main independent variable, the life course CI, is based on the average time distance between all critical events ever experienced. To this end, we used a weighted sum of all the distances between events. We adapted the CI from the Longitudinal Poverty Index developed by Mendola and colleagues (Mendola et al., 2011; Mendola and Busetta, 2012). The main difference between their version of the index and ours is that we used different types of events, whereas previous specifications focused on only one type of event at a time (e.g., poverty or unemployment spells).

At each year of the life history, we counted how many critical events happened and in which of the four life domains (family, work, health, and residence). Due to the nature of the data, we did not have the exact dates of events but only the years when they occurred, so we ended up having multiple critical events that happened simultaneously, that is, in the same year. We needed to distinguish then between *event-years* and *events*. By “event-years,” we mean the years (age) in which at least one critical life event was reported. By “events,” we mean each single occurrence, counting multiple occurrences per year. In other words, for each event-year (year when at least one occurrence was reported), we counted how many events actually happened. Equation 1 presents our CI:

$$CI_i = \frac{\sum_{j,k}(d_{jk+1})^{-1}w_{jk}}{\sum_{g=1}^{T-g+1}g}, j > k \quad (1)$$

The term d_{jk} in Equation 1 represents the time span between any pair of event-years (i.e., the number of years between any pair j, k). For instance, one individual in our sample reported four critical events over the life course: marriage and a residential move both at the age of 20 years, childbearing at age 25, and a job loss at age 30. Because marriage and the residential move happened simultaneously (i.e., in the same year) and we could not distinguish which one happened first, we considered them as one event-year, so we ended up with three event-years: (1) marriage and moving, (2) childbearing, (3) job loss. We calculated the (yearly) distance between each pair of event-years as follows: (a) distance between marriage/moving and childbearing ($d_{12} = 5$), (b) distance between marriage/moving and job loss ($d_{13} = 10$), and (c) distance between childbearing and job loss ($d_{23} = 5$).

For each distance d , that is, for each pair of event-years j, k , the weight (w_{jk}) allowed us to consider that multiple events might happen simultaneously, as in the example above. The weight gives more importance to pairs of event-years in which multiple events took place. Because in our study three or more events in the same year are rare³, we considered the occurrence of two or more events in one year as multiple events. We set then the weight equal to 1 for a pair of event-years in which in both years, multiple events happened, whereas it was equal to 0.75 for a pair of event-years in which in one year only one event occurred and in the other year multiple events happened. Finally, the weight was equal to 0.25 for pairs of event-years in which in both years only one event occurred. In other words, pairs of event-years that happened in crowded years received higher weights⁴.

Finally, T is the total number of years each person is present in the data and g indexes each of those years. The denominator represents the maximum concentration possible for an individual observed for T waves, namely as if they had multiple events every year (see Mendola, Busetta, and Milito 2011 for a demonstration).⁵ The index ranges theoretically from 0, representing the lowest possible concentration scenario (in our case, when one person experienced only two events at the maximum distance possibly observable for that person) to 1, representing the highest possible event concentration scenario (in our case, when one person experienced multiple events every year).

To summarize, the CI is a holistic measure of the concentration of critical events over the life course. It innovatively includes not only the overall number of critical life events ever experienced and their possible nonlinear cumulative effect, but also the yearly distance between them weighted for the number of events experienced each year. Notably, the CI can be extended in different ways according to the specific research questions or the sociological theories being tested and the type of data available. For example, weights can be discarded or different weights can be given to different types of events (e.g., by valence, occurrence, whether expected or not), the CI can be calculated for one given life domain at a time, and the number of years of recovery between events or their recentness can be included. Reviewing all possible extensions of the index

³ The distribution of number of episodes by year/event is: only one episode per year/event 73.73%; two episodes 17.53%; three episodes 4.71%; four episodes 1.8%; five or more episodes 2.23%.

⁴ Broadly speaking, the weight of the CI can be calculated as the average share of episodes happening in each year. In our example above, we would have for the first distance (d_{12}) two episodes (marriage and moving) in the first year and one (childbearing) in the second year. The associated weight would then be $w_{12} = \frac{2+1}{2} = 0.75$. Similarly, for the other pairs of episodes, we would have: $w_{13} = \frac{2+1}{2} = 0.75$ and $w_{23} = \frac{1+1}{2} = 0.25$.

⁵ For a more detailed graphical illustration of the index, interested readers can refer to Busetta et al. (2019).

goes well beyond the scope of this study. However, we conducted robustness checks utilizing different versions of the index, and the results were qualitatively similar, at least in our sample (see Supplementary material).

3.4 Controls and Mediators

Following existing literature on the association between SWB and life events, we included a series of socio-demographic variables to control for given individual characteristics that may bias our estimates and to test the existence of potential mediator effects. Summary statistics for all variables are presented in Table A2.

Events that are closer in time to the observed measure of life satisfaction tend to have larger impacts on life satisfaction (Suh et al, 1996). Because we observed individuals of different ages, younger people with shorter observed trajectories would have had more recent events and fewer total events. SWB also varies notably and non-linearly over the life course (Barbuscia & Comolli, 2021). For these reasons, in the models, we controlled for the age (and age squared) of the individual when wellbeing was measured and the time elapsed since the last event. Additional controls were being born in Switzerland and educational level (primary or lower secondary, upper secondary, tertiary).

The experience of given events and their number and concentration in time may be endogenous to pre-trajectory SWB levels. Unfortunately, we did not observe life satisfaction before the trajectory of events. However, we disposed of proxies for pre-trajectory wellbeing—namely, the experience of mental health issues before age 15 and the respondents' family living arrangements at the age of 15 years, both retrieved from the calendar. Though this did not completely solve the issue of reverse causality, previous studies have shown that childhood characteristics and family background represent strong determinants of adolescent wellbeing (Comolli et al., 2021).

3.5 Method

We used linear OLS models and stepwise modelling to test the association between the CI (linear and quadratic to test possible non linearities) and life satisfaction later in life. All models were stratified by gender to test possible heterogeneities between men and women.

In a first set of models, we considered all events together (negative and positive) and we added controls and mediators in three steps. First, we measured the association between the CI and life satisfaction net of the timing of the most recent event and the sociodemographic controls. Second, we controlled for pre-trajectory confounders. Third, we added possible mediators, or proximal determinants of SWB, namely current marital status, employment status and number of children. In this model, we tested whether the concentration of events had a direct effect on SWB beyond current professional and family conditions or only an indirect effect through them. Since our concentration index already included the total number of events experienced, we did not need to include explicitly such information in the regression models otherwise we might end up with collinearity issues.

In a second set of models, we relaxed the assumption that the concentration of events was associated to lower SWB irrespectively of their valence and tested the association between the CI of negative and positive events separately. In each model we controlled for sociodemographic characteristics, the pre-trajectory confounders, and the CIs of positive/negative events added in a linear fashion. Finally, in the final model

specification, we tested the interaction between the concentration of positive and negative events to investigate possible compensatory mechanisms between the two.

We ran a number of robustness checks. Among others, we tested a few versions of the index: disregarding weights for multiple occurrences per year, including recovery years between critical events and including recentness of last event in the index itself instead of controlling for it separately in the models. In addition, we tested the robustness of our models by excluding outliers (individuals with five or more episodes per year) and including individuals with zero and one event only in their life course.

All results are presented graphically, in terms of predicted life satisfaction by varying lifelong CI, and the full models are reported in the Appendix in Tables A4-A7. Robustness checks are discussed in a separate section in the Results and tables and figures are reported in the Supplementary material.

4. Results

4.1 Descriptive Results on the Concentration of Critical Events

The number of event-years the participants had experienced over the life course ranged from two to 50 (constrained by the fact that the longest biography retrospectively observed was 51 years) with an average of 10. The overall number of events ranged instead from two to 281, with an average of around 15 events experienced over the life span considered. Women tended to experience slightly more event-years and events than men (Table A2), especially more health issues and work-related events (Table A3). Figure 1 additionally shows, separately for men and women, the simple mean frequency of critical events by life domains calculated as the number of events in each domain experienced by each individual over the number of years the respondent is observed, then averaged for the whole sample of men and women respectively. The vertical dashed line corresponds to a frequency of one event every 10 years and the dotted line to a frequency of one event every 5 years. The more the dots are located on the right of the graph the more frequent they were. Health issues and residential moves were the most frequent events in the sample, both happening around once every decade for men and even more frequently among women. Family events on average happened slightly less frequently, whereas the rarest events were those in the work domain, happening on average around every 20 years (women) or less (men). Overall, women experienced all kind of events more frequently than men, but especially health issues⁶.

Mean frequencies, though, only gave us a rough idea of the distribution of events in time. Our aim was to test more precisely whether critical events more concentrated in time have a more negative effect on SWB compared to events more spaced out over the life course. To this end, we adopted a more precise measure of the lifetime concentration of critical events, the CI.

In our analytic sample, the CI ranged from 0 to 0.974 (0.97 for men and 0.92 for women, Table A2). As an illustration of the interpretation of the CI, Figure 2 plots a varying number of critical events occurring by age for four respondents with different CIs. Two of whom had extreme profiles, one with a very low CI of 0.0003 and one with very high CI of 0.974, and two of whom had midrange profiles: CIs of 0.077 and 0.177. The two

⁶ This could be partly due to gender differences in reporting behavior during interviews, although the higher prevalence of health issues reported by women has been found “real and not a reporting artefact” (Stenberg & Wall, 1995: 491).

extreme profiles show that the lowest concentration represents individuals with very few events happening sparsely in time: In the example given, the first event happened at the age of 21 years and the second at the age of 39. The respondent with the highest concentration experienced over 35 events in the life course of 50 years observed with basically one event per year. The other two profiles are intermediate.

Table 1 also reports the descriptive statistics of interesting variables comparing individuals with very low CIs (bottom 10%: < 0.0098) and very high CIs (top 10%: > 0.2287). The high CI group experienced 6 times the number of events and almost 10 times as many episodes than the low CI group, and the last event occurred much more recently. The high CI group included a larger share of women than the low CI group and slightly younger and better educated respondents. Table 2 reports bivariate correlations among the variables in the model.

4.2 The Association Between CI and SWB: Multivariate Results

Figure 3 illustrates the association between the concentration of life events and life satisfaction for men and women (Models 2 and 5, Table A4). In support of our first hypothesis, results show that—net of the sociodemographic characteristics and pre-trajectory (before age 15) determinants of wellbeing and the time since the last of these events—the CI of such critical events over the life course is negatively associated with life satisfaction later in life. The higher the CI is, the stronger the longstanding negative effect on wellbeing is. This is true for both men and women, although for men the relationship is almost linear while for women it is much less so: initial increases in CI are strongly associated with declines in SWB while the association flattens out after the CI reaches 0.4. Point estimates suggest a 0.13 and 0.21 lower SWB for each 0.1 increase in CI respectively for men and women (Models 2 and 5, Table A4). Taking as an example the event–age profiles of the two middle respondents plotted in Figure 2, a female (male) respondent with a 0.177 CI reported a 0.21-point (0.13-point) lower life satisfaction than the respondent with a 0.077 CI. The magnitude and relevance of the relationship seems substantial. Even including in a stepwise manner an exhaustive set of controls, the CI point estimate and its statistical significance remain substantively unchanged. For women, the concentration of critical events over the life course has long-lasting effects on SWB: Neither pre-trajectory proxies nor more proximal determinants of SWB affect the association between CI and life satisfaction later in life. The association among men, instead, seems to be indirect: the drop in SWB is mediated by current family and professional status (Models 2-3 and 5-6, Table A4).

To investigate the concentration of events by valence (positive/negative), we re-calculated the CI separately for negative (range of 0-0.64 for men and 0-0.74 for women, Table A2) and positive events (0-0.15 for men and 0-0.18 for women, Table A2). Figure 4 shows that the overall negative effect of events' concentration on life satisfaction was driven mainly by negative events (Models 2 and 7, Table A5). The concentration of positive events over the life course, at lower levels of concentration, initially increased (weakly) SWB for women and decreased (not significantly) men's SWB. Yet, at levels of concentration of positive events above the mean, men's SWB declined similarly to when the concentration of negative events was high. We found no such effect for women. Notably, the effect of the concentration of both negative and positive events on life satisfaction was largely independent from the co-occurrence of the opposite type of event (Table A5).

Figure 5 plots the predicted life satisfaction based on the interaction between the CI of negative and positive events, and largely confirms our findings (Models 4 and 9, Table A5). No compensation between the concentration of events of different valence emerged neither for men nor for women. In fact, life satisfaction was minimal when both the concentration of negative and positive events was highest. Yet, while among men there was a clearer symmetry between critical events of opposite valence (a higher CI went together with lower wellbeing), among women the concentration of positive events was positively related to SWB but only if the concentration of negative events was low. Once the negative events became more concentrated, also the positive events became detrimental for women’s life satisfaction (Figure 5). All in all, our findings supported our second hypothesis that the concentration of critical events negatively affected SWB irrespectively of their valence among men, while among women we found a more complex interplay between the concentration over time of positive and negative events. However, at high levels of concentration we confirmed also for women that even the concentration of positive events, when coupled with negative events, strongly reduced SWB. Finally, in line with our third hypothesis, strong gender differences emerged: even if women experienced on average more events than men, men suffered more than women from the concentration of events even at lower levels of concentration and even when the events were of positive valence.

4.3 Robustness Checks

We conducted a large number of robustness checks to ensure the soundness of our estimates (Figures S1–S6 and Tables S1-S4 in Supplementary Material).

To begin with, we slightly modified the CI to test its robustness. First, we excluded the weight term (w_{ij}) that gives more relevance to event-years with multiple events. Figures S1-S2 show that results were qualitatively similar independently of the inclusion of the weights. Second, when we included a term, o_{jk} in the index to account for the number of years without any events (length of recovery period), our results remained identical⁷ (Figure S3, Models 1 and 4 in Table S1). Third, we also obtained qualitatively similar results when we explicitly added a term in the index that accounted for the recentness of events, instead of controlling for the time since the last event as we did in our models. Following Busetta et al. (2019), we added a recentness factor, re , that was greater the more recent the latest event was. This factor was inserted in the CI as an additive term, and its relevance with respect to the main term of the index as in Equation 1 was weighted by choosing a discretionary alpha level.⁸ Figure S4 (Models 2-3 and 5-6 in Table S1) shows that at different alpha levels (0.8 and 0.6), the index remained negatively correlated with SWB. We preferred the simpler specification without the re factor because it depended less on our discretionary choices and gave a simpler interpretation of the CI, but the results were unaltered by this choice. Forth, the association between the CI and SWB did not depend on the time since the last event was experienced (Models 1-2 and 4-5 in Table S2) and controlling for a pre-trajectory of physical health (illnesses, operations, and accidents) instead of mental health

⁷ This version of the index was calculated as $CI_i = \frac{\sum_{j,k}(d_{jk+1})^{-(o_{jk+1})} w_{jk}}{\sum_{g=1}^{T-1} \frac{g}{T-g+1}}$, $j > k$.

⁸ This version of the index was calculated as $CI_i = \alpha \frac{\sum_{j,k}(d_{jk+1})^{-(o_{jk+1})} w_{jk}}{\sum_{g=1}^{T-1} \frac{g}{T-g+1}} + (1 - \alpha)re$, $j > k$.

also did not alter the results (Models 3 and 6, Table S2). Fifth, we excluded outliers, namely individuals who experienced a very large number of occurrences (five or more events per year) to exclude the possibility that they were the ones driving the results. Table S3 demonstrates that the negative association between CI and SWB became even stronger when excluding these outliers. Sixth, including respondents who experienced zero or only one event during their life course gave identical if not stronger results compared to the main analyses (Table S4).

Finally, we conducted some additional analyses (S5-S6) for a more refined understanding of the link between the concentration of events and SWB. First, we analyzed whether it is the concentration of events from a specific life domain that explained our findings. As could be expected, health issues – that represented almost 30% of the total number of events observed in our sample – largely drove the association between the concentration of negative events on SWB. While concentrated work events also, but much more weakly reduced life satisfaction, the concentration of family events alone did not influence wellbeing. Then, we investigated differences by life stages. We recalculated the Concentration Index (CI) in youth (18-29), early adulthood (30-39), midlife (40-49) and older adulthood (50-65). Subjective wellbeing was measured at earliest subsequent age and no later than five years later. A higher concentration of events was associated with a significantly lower life satisfaction in all life stages. We observed a stronger negative association among women in the youngest groups (20s) and among men in the oldest (50s) groups, and the smallest in midlife (40s) for both genders. Such differences might be driven by the fact that in early adulthood and midlife the occurrence of multiple transitions is more normative than in younger and older life stages, thus the concentration of critical events during the 30s-40s is less detrimental for SWB than concentrated events in other stages in the life course. Another possible explanation is that simply the differences in prevalence of type of event by life stages might have driven the observed results, yet with interesting gender differences. Each life stage was in fact characterised by the prevalence of certain events. For instance, health issues were concentrated in the second half of the life course and their concentration seemed to affect men more strongly than women, while family events, like childbearing and union formation, were more common in the youth and seemed to be more detrimental for women's SWB when concentrated.

5. Discussion

Individuals experience a variety of critical events during their life course. A rich literature has documented that such critical events influence SWB (Hentschel et al., 2017; Yap et al., 2014), but most studies have focused on only one event or, at best, multiple events in one life domain at a time (Booker & Saker, 2012; Demey et al., 2014). However, the principle of the multidimensionality of the life course and the stress proliferation theory posit that events do not occur in isolation but that exposure to one stressor may lead to exposure to other stressors involving multiple life domains and generating periods in the life course that are particularly crowded with critical events.

The relatively few studies on this topic have focused more on the evolution of SWB over time, in terms of processes of anticipation, adaptation, and recovery (Anusic et al., 2014; Luhmann & Eid, 2009; Luhmann et al., 2014; Voelkle et al., 2013) simply by counting the number of events experienced in a specific period

(Frijters et al., 2020; Seery et al., 2010; Wheaton & Clarke, 2003) as a measure of the concentration of events. This study aimed to fill gaps in the existing literature by acknowledging not only that multiple events might happen at the same time or in close temporal proximity but also that the distribution of critical life course events across time, that is, what we called the concentration of events, might accentuate changes in individuals' SWB. We argue that a strong concentration of critical events affects wellbeing more strongly and more persistently over time than if the same events were sparsely distributed.

The first contribution of this study is that we were able to assess the impact of a lifetime concentration of critical events on SWB more rigorously than just by counting the number of events (McMahon et al., 2003; Seery et al., 2010). We introduced a novel indicator of the distribution of events in individuals' histories, the CI, that considers not only the overall number of events ever experienced, as previous studies did, but also the time between them and the number of occurrences involved each time. Our main finding is that the CI of critical life course events is negatively associated with life satisfaction. Crucially, this not only holds net of sociodemographic characteristics and pre-trajectory (before age 15 years) determinants of wellbeing but also matters beyond the recentness of the experience of the last of these events. Among women, the association holds even beyond current professional and family circumstances.

All in all, wellbeing is affected differently according to the spacing between events and not simply the number of events experienced. While the association was strongly driven by negative events, and in particular by health events, the concentration over time of positive occurrences did not compensate for the loss of SWB. On the contrary, even the concentration of beneficial events became detrimental for life satisfaction later in life if coupled with an average or higher concentration of negative occurrences. Overall, we therefore conclude that our findings align with the findings from earlier studies in favor of combining critical events with opposite valences, especially in the context of assessing lifelong adversities and their related long-term effects on wellbeing (Luhmann et al., 2014; Seery et al., 2010).

Finally, our findings revealed quite substantial gender differences in the association between the CI and SWB. Consistently with existing literature and our hypothesis, we found that despite women experience on average more life events than men, they are also more resilient: The effect of concentration of events is indeed stronger among men than women. However, our indicator allowed us to identify an interesting pattern overlooked in existing studies. While men tend to display an almost linear relationship between the concentration of critical events over the life course and life satisfaction later on, women report a greater decline in SWB with increases in CI at low levels of concentration, but the association flattens out at CI levels above the mean. This seems suggesting that for women their resilience is driven by the fact that they are exposed frequently to events close in time (high concentration); additional events likely will not influence their SWB later on in life. Among women that instead have been exposed to events more dispersed over the life course (low concentration), the negative association with SWB resemble the one observed among men. This speaks, once again, about the importance of looking at the concentration of events over time to study their impact on the quality of life rather than simply rely on the total number of events experienced. The observed pattern is true in general and for the concentration of negative events, while for positive occurrences their concentration

has a slightly positive effect on women's SWB. For men the concentration of positive events is associated with a strong decline in life satisfaction at CI levels above the mean. This is reflected in the interplay between events of difference valence: the greatest wellbeing is reported by women with a high concentration of positive and low concentration of negative events, and by men with minimal concentration in both. A large concentration of positive and negative events is instead associated with the lowest reported SWB by both men and women, suggesting once more that the declining wellbeing as a consequence of a high concentration of negative events is not buffered by increasing concentration of positive events.

Our study suffers from a few limitations. First, using a life course index to summarize lifelong trajectories of critical events clearly reduces our chances of identifying the mechanisms explaining the relationship between a concentration of critical events over time and SWB. This is an unavoidable result of the tradeoff between the long-term general view we took and zooming in on specific events, domains or phases in the life course. Second, despite controlling for pre-trajectory determinants of SWB, we do not have information on SWB during adolescence or before the first critical event included. To estimate the causal effect of the CI on SWB, we would need to control for that to rule out the possibility that individuals who are happier at the start tend to experience not only fewer critical events, but also less concentrated events. Third, the relatively limited number of observations prevented us from investigating potential heterogeneities besides gender in the effects of the CI on SWB, for instance across individuals' socioeconomic backgrounds or at the intersection between gender and social status. Fourth, yearly data do not allow us to measure distance between events happening during the same year and, more importantly, are more prone to induce measurement errors in our concentration index given that some events may have happened closer in time but recorded in two different years (if one happens in December in one year and the other in January the following year) compared to events happening the same year but many months apart (e.g. if one event takes place in January of one year and the other in December of the same year). Future studies should replicate our findings with data that dispose of a finer reporting of events' dates (at least with a monthly calendar).

Despite these limitations, our study represents an important contribution to the literature, being the first to assess how a lifetime concentration of critical events in a relatively crowded life course lowers men's and women's SWB later in life. It is important to stress that the effect of a higher concentration of critical events on life satisfaction is not simply a reflection of the number of critical events a person experiences, but that the dispersion of such events over time plays an independent role.

References

- Aassve, A., Goisis, A., & Sironi, M. (2012). Happiness and childbearing across Europe. *Social Indicators Research*, *108*(1), 65–86.
- Anusic, I., Yap, S. C., & Lucas, R. E. (2014). Testing set-point theory in a Swiss national sample: Reaction and adaptation to major life events. *Social Indicators Research*, *119*(3), 1265–1288.
- Balbo, N., & Arpino, B. (2016). The role of family orientations in shaping the effect of fertility on subjective well-being: A propensity score matching approach. *Demography*, *53*(4), 955–978.
- Barbuscia, A., & Comolli, C. (2021). Gender and socioeconomic inequalities in health and wellbeing across age in France and Switzerland. *Vienna Yearbook of Population Research*, *19*(1), 215–254.
- Booker, C. L., & Sacker, A. (2012). Psychological wellbeing and reactions to multiple unemployment events: Adaptation or sensitisation? *Journal of Epidemiology and Community Health*, *66*(9), 832–838.
- Boyce, C. J., Wood, A. M., & Powdthavee, N. (2013). Is personality fixed? Personality changes as much as “variable” economic factors and more strongly predicts changes to life satisfaction. *Social Indicators Research*, *111*(1), 287–305.
- Brickman, P., & Campbell, D. T. (1971). Hedonic relativism and planning the good society. In M. H. Appley (Ed.), *Adaptation Level Theory: A Symposium* (pp. 287–302). Academic Press.
- Busetta, A., Mendola, D., & Vignoli, D. (2019). Persistent joblessness and fertility intentions. *Demographic Research*, *40*, 185–218.
- Charles, K. K., & Stephens, Jr., M. (2004). Job displacement, disability, and divorce. *Journal of Labor Economics*, *22*(2), 489–522.
- Clark, A. E., & Georgellis, Y. (2013). Back to baseline in Britain: adaptation in the British household panel survey. *Economica*, *80*(319), 496–512.
- Clark, A. E., Diener, E., Georgellis, Y., & Lucas, R. E. (2008). Lags and leads in life satisfaction: A test of the baseline hypothesis. *The Economic Journal*, *118*(529), F222–F243.
- Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature*, *46*(1), 95–144.
- Clark, W. A. (2016). Life events and moves under duress: Disruption in the life course and mobility outcomes. *Longitudinal and Life Course Studies*, *7*(3), 218–239.
- Clarke, P., & Wheaton, B. (2005) Mapping social context on mental health trajectories through adulthood. *Advances in life course research*, *9*, 269–301.
- Comolli, C. L., Bernardi, L., & Voorpostel, M. (2021). Joint family and work trajectories and multidimensional wellbeing. *European Journal of Population*, *37*, 643–696.
- De Neve, J. E., Ward, G., De Keulenaer, F., Van Landeghem, B., Kavetsos, G., & Norton, M. I. (2018). The asymmetric experience of positive and negative economic growth: Global evidence using subjective wellbeing data. *Review of Economics and Statistics*, *100*(2), 362–375.
- Demey, D., Berrington, A., Evandrou, M., & Falkingham, J. (2014). Living alone and psychological wellbeing in mid-life: Does partnership history matter? *Journal of Epidemiology and Community Health*, *68*(5), 403–410.
- Di Nallo, A., Lipps, O., Oesch, D., & Voorpostel, M. (2022). The effect of unemployment on couples separating in Germany and the UK. *Journal of Marriage and Family*, *84*(1), 310–329.
- Diener, E., Lucas, R. E., & Scollon, C. N. (2006). Beyond the hedonic treadmill: Revising the adaptation theory of wellbeing. *American Psychologist*, *61*(4), 305.
- Dienstbier, R. A. (1989). Arousal and physiological toughness: Implications for mental and physical health. *Psychological Review*, *96*(1), 84–100.
- Dienstbier, R. A. (1992). Mutual impacts of toughening on crises and losses. In L. Montada, S. H. Filipp, & M. J. Lerner (Eds.), *Life Crises and Experiences of Loss in Adulthood* (pp. 367–384). Lawrence Erlbaum Associates, Inc.
- Diewald, M., & Mayer, K. U. (2009). The sociology of the life course and life span psychology: Integrated paradigm or complementing pathways? *Advances in Life Course Research*, *14*(1–2), 5–14.

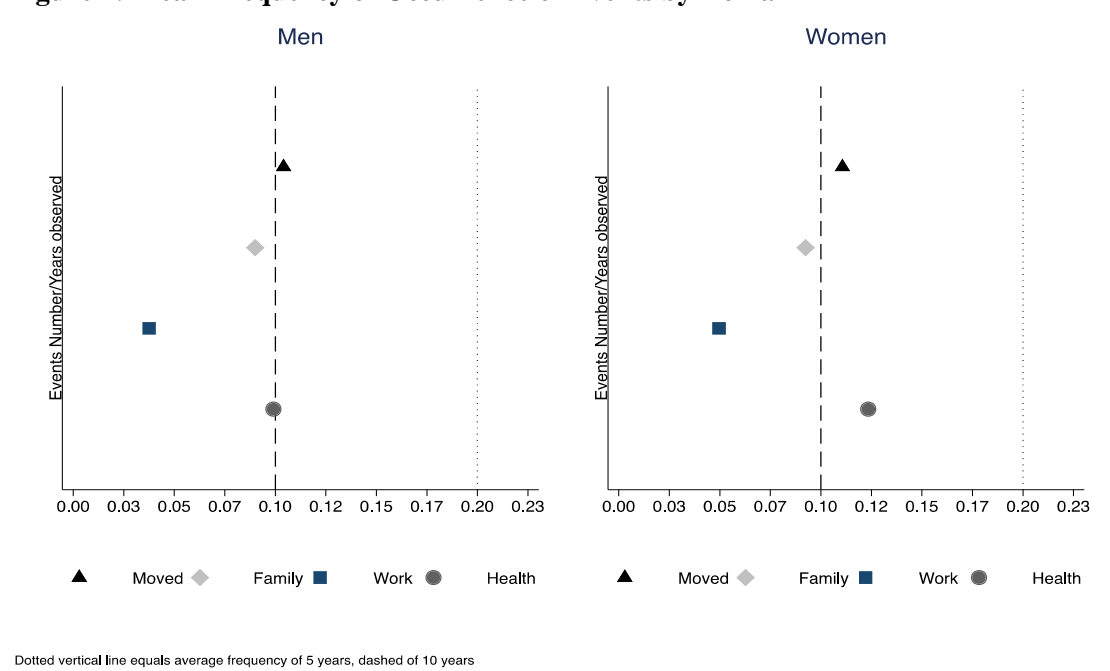
- Dohrenwend, B. P. (2006). Inventorying stressful life events as risk factors for psychopathology: Toward resolution of the problem of intracategory variability. *Psychological Bulletin*, *132*(3), 477.
- Dohrenwend, B. S., & Dohrenwend, B. P. (1974). *Stressful Life Events: Their Nature and Effects*. John Wiley and Sons.
- Dohrenwend, B. S., Askenasy, A. R., Krasnoff, L., & Dohrenwend, B. P. (1978). Exemplification of a method for scaling life events: The PERI Life Events Scale. *Journal of Health and Social Behavior*, *19*(2), 205–229.
- Elder Jr., G. H. (1998). The life course as developmental theory. *Child Development*, *69*(1), 1–12.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J.T. Mortimer & M.J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 3–19). Springer.
- Frijters, P., Johnston, D. W., & Shields, M. A. (2011). Life satisfaction dynamics with quarterly life event data. *Scandinavian Journal of Economics*, *113*(1), 190–211.
- Frijters, P., Krekkel, C., & Ulker, A. (2020). Machiavelli versus concave utility functions: Should bads be spread out or concentrated? (No. 13021). IZA Discussion Papers.
- Hentschel, S., Eid, M., & Kutscher, T. (2017). The influence of major life events and personality traits on the stability of affective wellbeing. *Journal of Happiness Studies*, *18*(3), 719–741.
- Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, *11*(2), 213–218.
- Hopson, B., & Adams, J. (1976). Towards an understanding of transition: Defining some boundaries of transition dynamics. In J. Adams, J. Hayes, & B. Hopson (Eds.), *Transition: Understanding and Managing Personal Change* (pp. 3–25). Montclair, NJ: Allanheld, Osmun & Co.
- Kahneman, D., & Tversky, A. (1979). On the interpretation of intuitive probability: A reply to Jonathan Cohen. *Cognition*, *7*(4), 409–411.
- Keizer, R., Dykstra, P. A., & Poortman, A. R. (2010). The transition to parenthood and well-being: The impact of partner status and work hour transitions. *Journal of Family Psychology*, *24*(4), 429.
- Kessler, R. C., Davis, C. G., & Kendler, K. S. (1997). Childhood adversity and adult psychiatric disorder in the US National Comorbidity Survey. *Psychological Medicine*, *27*(5), 1101–1119.
- Kettlewell, N., Morris, R. W., Ho, N., Cobb-Clark, D. A., Cripps, S., & Glozier, N. (2020). The differential impact of major life events on cognitive and affective wellbeing. *SSM-Population Health*, *10*, 100533.
- Koren, C. (2016). Men's vulnerability–women's resilience: from widowhood to late-life repartnering. *International psychogeriatrics*, *28*(5), 719–731.
- Lindeboom, M., Portrait, F., & Van den Berg, G. J. (2002). An econometric analysis of the mental-health effects of major events in the life of older individuals. *Health Economics*, *11*(6), 505–520.
- Longua, J., DeHart, T., Tennen, H., & Armeli, S. (2009). Personality moderates the interaction between positive and negative daily events predicting negative affect and stress. *Journal of Research in Personality*, *43*(4), 547–555.
- Lucas, R. E. (2007). Adaptation and the set-point model of subjective wellbeing: Does happiness change after major life events? *Current Directions in Psychological Science*, *16*(2), 75–79.
- Lucas, R. E., Clark, A. E., Georgellis, Y., & Diener, E. (2004). Unemployment alters the set point for life satisfaction. *Psychological Science*, *15*(1), 8–13.
- Luhmann, M., & Eid, M. (2009). Does it really feel the same? Changes in life satisfaction following repeated life events. *Journal of Personality and Social Psychology*, *97*(2), 363.
- Luhmann, M., Fassbender, I., Alcock, M., & Haehner, P. (2021). A dimensional taxonomy of perceived characteristics of major life events. *Journal of Personality and Social Psychology*, *121*(3), 633.
- Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective wellbeing and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology*, *102*(3), 592.
- Luhmann, M., Orth, U., Specht, J., Kandler, C., & Lucas, R. E. (2014). Studying changes in life circumstances and personality: It's about time. *European Journal of Personality*, *28*(3), 256–266.
- Lykken, D., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science*, *7*(3), 186–189.
- Mangelsdorf, J., Eid, M., & Luhmann, M. (2019). Does growth require suffering? A systematic review and meta-analysis on genuine posttraumatic and postecstatic growth. *Psychological bulletin*, *145*(3), 302.

- Mayer, K. U. (2009). New directions in life course research. *Annual Review of Sociology*, 35, 413–433.
- McMahon, S. D., Grant, K. E., Compas, B. E., Thurm, A. E., & Ey, S. (2003). Stress and psychopathology in children and adolescents: Is there evidence of specificity? *Journal of Child Psychology and Psychiatry*, 44(1), 107–133.
- Mendola, D., & Busetta, A. (2012). The importance of consecutive spells of poverty: A path-dependent index of longitudinal poverty. *Review of Income and Wealth*, 58(2), 355–374.
- Mendola, D., Busetta, A., & Milito, A. M. (2011). Combining the intensity and sequencing of the poverty experience: A class of longitudinal poverty indices. *Journal of the Royal Statistical Society: Series A*, 174(4), 953–973.
- Myrskylä, M., & Margolis, R. (2014). Happiness: Before and after the kids. *Demography*, 51(5), 1843–1866.
- Nezlek, J. B., & Plesko, R. M. (2003). Affect and self-based models of the relationships between daily events and daily wellbeing. *Personality and Social Psychology Bulletin*, 29, 584–596.
- O’Rand, A. M. (1996). The precious and the precocious: Understanding cumulative disadvantage and cumulative advantage over the life course. *Gerontologist*, 36(2), 230–238.
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136(2), 257.
- Pearlin, L. I. (2010). The life course and the stress process: Some conceptual comparisons. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 65(2), 207–215.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behaviour*, 22(4), 337–356.
- Ponomarenko, V. (2016). Cumulative disadvantages of non-employment and non-standard work for career patterns and subjective wellbeing in retirement. *Advances in Life Course Research*, 30, 133–148.
- Powdthavee, N. (2009). What happens to people before and after disability? Focusing effects, lead effects, and adaptation in different areas of life. *Social Science & Medicine*, 69(12), 1834–1844.
- Raposa, E. B., Hammen, C. L., Brennan, P. A., O’Callaghan, F., & Najman, J. M. (2014). Early adversity and health outcomes in young adulthood: The role of ongoing stress. *Health Psychology*, 33(5), 410.
- Reich, J. W., & Zautra, A. (1981). Life events and personal causation: Some relationships with satisfaction and distress. *Journal of Personality and Social Psychology*, 41(5), 1002.
- Riley, M. W., & Riley Jr, J. W. (1994). Age integration and the lives of older people. *Gerontologist*, 34(1), 110–115.
- Rindfuss, R. R., Swicegood, C. G., & Rosenfeld, R. Disorder in the life course: How common and does it matter? *American Sociological Review*, 49(1987): 359–72.
- Sayer, L. C., England, P., Allison, P. D., & Kangas, N. (2011). She left, he left: How employment and satisfaction affect women’s and men’s decisions to leave marriages. *American Journal of Sociology*, 116(6), 1982–2018.
- Seery, M. D., Holman, E. A., & Silver, R. C. (2010). Whatever does not kill us: Cumulative lifetime adversity, vulnerability, and resilience. *Journal of Personality and Social Psychology*, 99(6), 1025.
- South, S. J., Crowder, K. D., & Trent, K. (1998). Children’s residential mobility and neighborhood environment following parental divorce and remarriage. *Social Forces*, 77(2), 667–693.
- Suh, E., Diener, E., & Fujita, F. (1996). Events and subjective wellbeing: Only recent events matter. *Journal of Personality and Social Psychology*, 70, 1091–1102.
- Thoits, P. A. (1983). Multiple identities and psychological wellbeing: A reformulation and test of the social isolation hypothesis. *American Sociological Review*, 48, 174–187.
- Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, 51(S1), S41–S53.
- Thomas, J. S. (2018). Dimensions of family disruption: Coincidence, interactions, & impacts on children’s educational attainment. *Longitudinal and Life Course Studies*, 9(2), 157–187.
- Turner, R. J., & Lloyd, D. A. (1995). Lifetime traumas and mental health: The significance of cumulative adversity. *Journal of Health and Social Behavior*, 36(4), 369–76.

- Uhlenberg, P., & Mueller, M. (2004). Family context and individual wellbeing. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 123–148). Springer.
- Vendrik, M. C., & Woltjer, G. B. (2007). Happiness and loss aversion: Is utility concave or convex in relative income? *Journal of Public Economics*, *91*(7–8), 1423–1448.
- Voelkle, M. C., Ebner, N. C., Lindenberger, U., & Riediger, M. (2013). Here we go again: Anticipatory and reactive mood responses to recurring unpleasant situations throughout adulthood. *Emotion*, *13*(3), 424.
- Weitzman, L. J. (1985). *Divorce Revolution*. Collier Macmillan.
- Wheaton, B., & Clarke, P. (2003). Space meets time: Integrating temporal and contextual influences on mental health in early adulthood. *American Sociological Review*, *68*(5), 680–706.
- Wheaton, B., & Gotlib, I. H. (1997). Trajectories and turning points over the life course: Concepts and themes. In I. H. Gotlib & B. Wheaton (Eds.), *Stress and Adversity Over the Life Course: Trajectories and Turning Points* (pp: 1–25). Cambridge University Press.
- Wheaton, B., & Reid, S. (2008). The role of timing vs. duration in the cumulative work history effects of job exits and nonemployment on women’s mental health. *Advances in Life Course Research*, *13*, 195–232.
- Widmer, E. D., & Ritschard, G. (2009). The de-standardization of the life course: Are men and women equal? *Advances in Life Course Research*, *14*(1-2), 28–39.
- Yap, S. C., Anusic, I., & Lucas, R. E. (2014). Does happiness change? Evidence from longitudinal studies. In K.M. Sheldon & R.E. Luca (Eds.), *Stability of Happiness* (pp: 127–145). Elsevier.

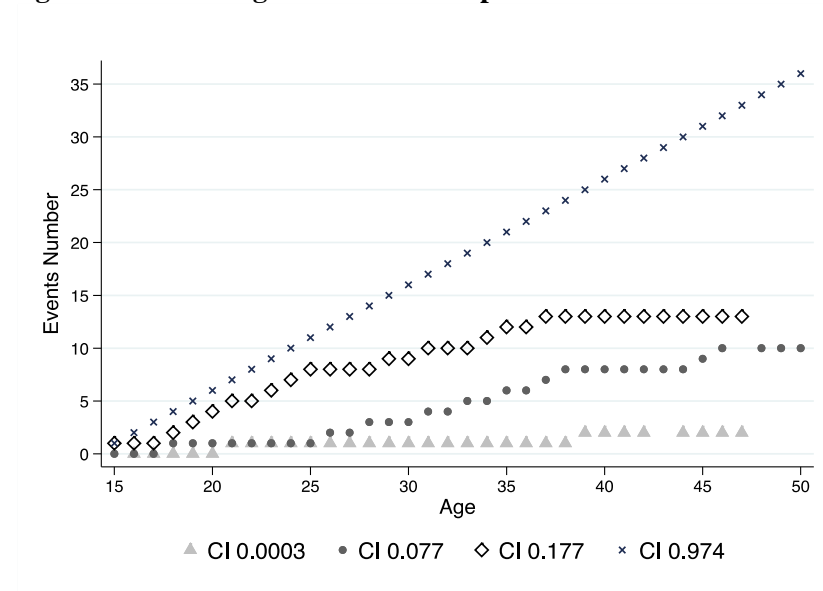
Figures

Figure 1: Mean Frequency of Occurrence of Events by Domain



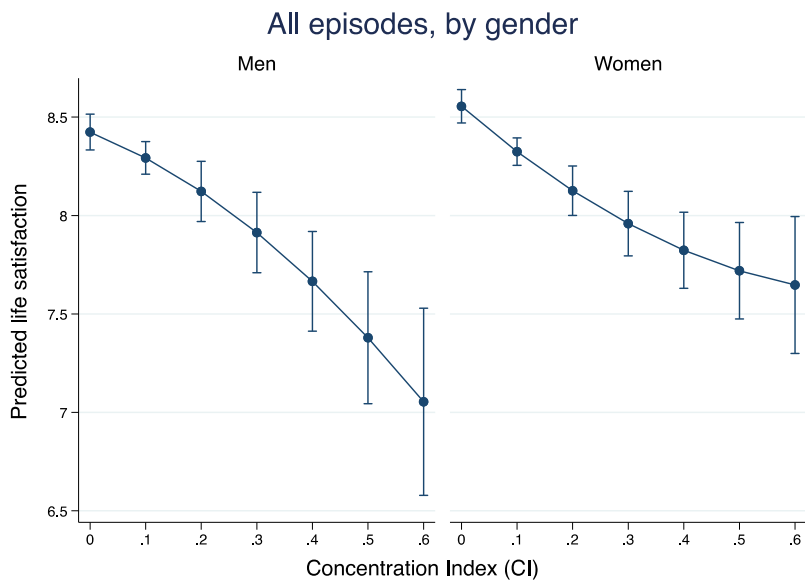
Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data.

Figure 2: Events–Ages Profiles of Respondents with Different Life Course CIs



Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Note: CI = concentration index.

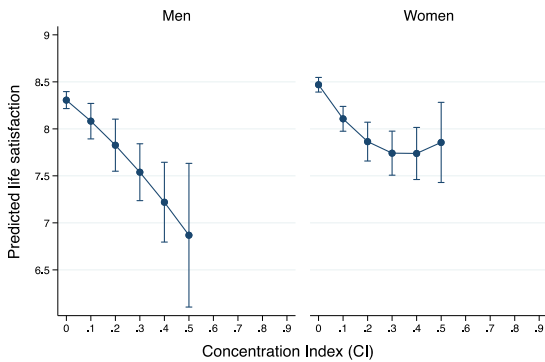
Figure 3: Predicted Life Satisfaction by Concentration Index (CI)



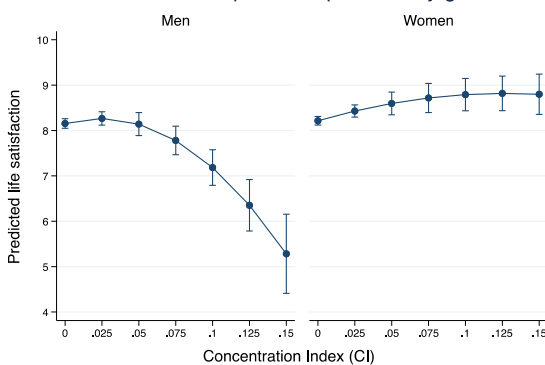
Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Robust standard errors. Note: Estimates from Models 2-5 in Table A4.

Figure 4: Predicted Life Satisfaction by Life Course Concentration Index (CI) by valence

Concentration of (Weighted) negative episodes, by gender

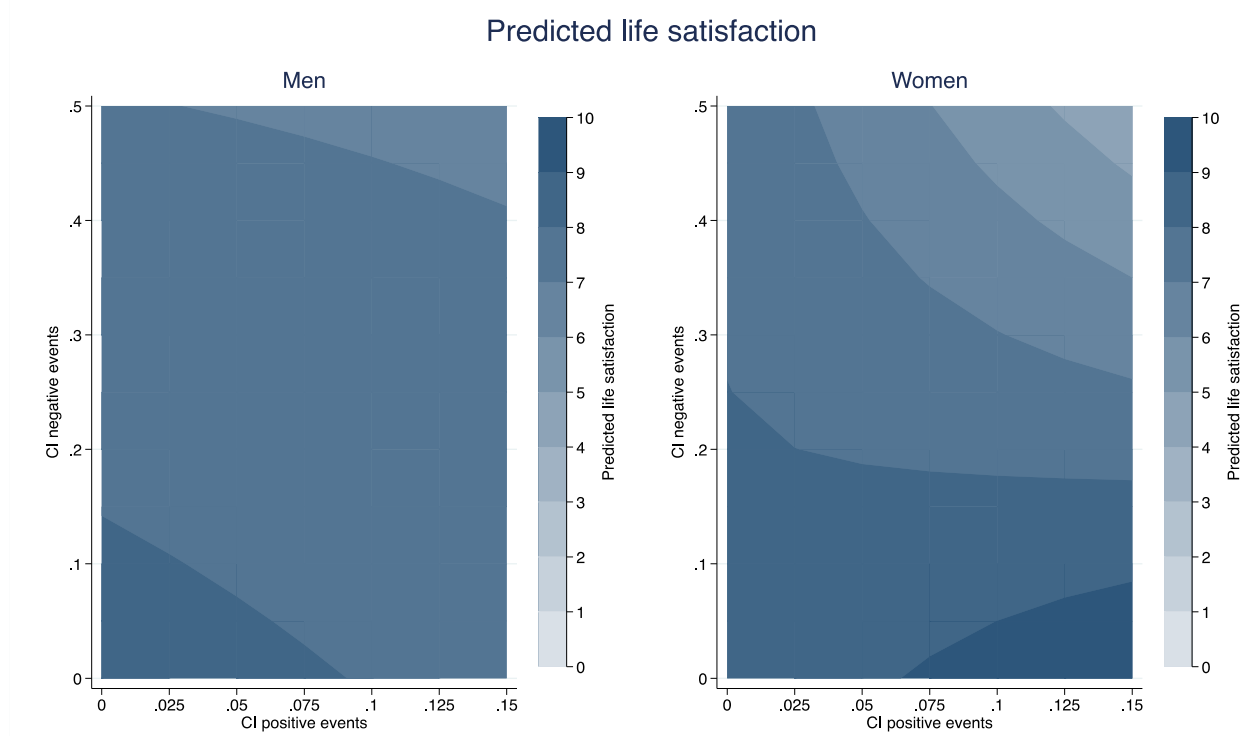


Concentration of positive episodes, by gender



Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Robust standard errors. Note: Residential moves excluded. Positive events are rarer and happen in only two domains (family and work), versus negative events (health, family, and work). Therefore, while the CI for negative events ranges from 0 to 0.510, the index for positive events ranges from 0 to 0.157. No multiple positive episodes were observed in the same year so distances between positive events are not weighted. Estimates from Model 2 and 7 in Table A5.

Figure 5: Predicted Life Satisfaction by Life Course Concentration Index (CI) by interaction between negative and positive events concentration.



Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Robust standard errors. *Note:* Residential moves excluded. Positive events are rarer and happen in only two domains (family and work), versus negative events (health, family, and work). Therefore, while the CI for negative events ranges from 0 to 0.510, the index for positive events ranges from 0 to 0.157. No multiple positive episodes were observed in the same year so distances between positive events are not weighted. Estimates from Models 4 and 9 in Table A5.

Tables

Table 1: Descriptive Statistics for Individuals with Very Low and Very High Concentration Indices

Variable	Low CI (< 0.0098)					High CI (> 0.2287)					
	N	M	SD	Min.	Max.	N	M	SD	Min.	Max.	
Total number of events	320	3.70	1.27	2	7	320	22.86	10.00	3	50	
Total number of episodes	320	4.28	1.69	2	10	320	39.98	28.95	3	281	
Time since last event	320	8.77	7.47	1	39	320	1.85	1.37	1	16	
Age	320	48.16	10.79	21	65	320	44.68	11.36	18	65	
Variable	N				N						
Gender											
Men	165	51.56				112	35.00				
Women	155	48.44				208	65.00				
Total	320	100.00				320	100.00				
Education											
Primary or lower secondary	29	9.06				31	9.69				
Upper secondary	188	58.75				179	55.94				
Tertiary	103	32.19				110	34.38				
Total	320	100.00				320	100.00				

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. *Note:* Age and education were measured at the time subjective wellbeing was measured. CI = concentration index.

Table 2: Bivariate correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Life satisfaction (SWB)	1.000											
(2) Concentration index (CI)	-0.183	1.000										
(3) Years since last event	0.111	-0.279	1.000									
(4) Age at interview	0.088	-0.116	0.130	1.000								
(5) Gender	0.021	0.069	-0.052	-0.022	1.000							
(6) Born in Switzerland	-0.110	-0.001	-0.021	-0.029	0.034	1.000						
(7) Education at interview	0.080	-0.054	0.046	0.003	-0.160	-0.069	1.000					
(8) Pre-trajectory mental health	-0.048	0.118	-0.029	-0.067	0.013	0.002	-0.010	1.000				
(9) Living arrangement at age 16	-0.027	0.036	-0.016	-0.007	0.043	0.048	-0.063	-0.002	1.000			
(10) Number of kids at interview	0.055	-0.112	0.085	0.270	-0.017	-0.006	0.009	-0.050	-0.037	1.000		
(11) Marital status at interview	-0.021	-0.058	0.037	0.371	0.091	0.043	-0.041	-0.043	0.013	0.353	1.000	
(12) Employment at interview	-0.090	0.088	-0.079	0.306	0.125	0.050	-0.165	0.006	0.066	0.034	0.052	1.000

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. *Note:* Age and education were measured at the time subjective wellbeing was measured. CI = concentration index.

Appendix

Tables

Table A1: Tabulation of Events

Categories of events	<i>N</i>	%
Negative valence		
Health issues	20,027	28.79
Bereavement (parents/siblings/own children)	4,717	6.78
Own separation/divorce/widowhood	880	1.27
Unemployment	771	1.11
Exit from full-time work -> part-time work	399	0.57
Parental separation/divorce	353	0.51
	27,147	39.03
Positive valence		
Own marriage/registered partnership	10,191	14.65
Birth of a child	8,362	12.02
Retirement	2,894	4.16
Entry into full-time work	1,417	2.04
Exit from unemployment -> part-time work	288	0.41
Birth of a sibling	195	0.28
Exit from unemployment -> Employed (no info. on activity rate)	114	0.16
Parental marriage/remarriage/partnering	80	0.12
	23,541	33.84
Residential moves	18,875	27.13
	69,563	100.00

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data.

Table A2: Summary statistics by gender

		Men					Women				
		Obs./N	Mean/%	SD	Min	Max	Obs./N	Mean/%	SD	Min	Max
Life satisfaction (SWB)		1,444	8.31	1.37	0	10	1,748	8.34	1.43	0	10
Concentration index (CI)		1,444	.08	.12	0	.97	1,748	.10	.13	0	.92
Total number of events		1,444	9.47	6.22	2	50	1,748	10.21	7.17	2	47
Total number of episodes		1,444	13.88	13.92	2	219	1,748	15.42	15.93	2	281
Years since last event		1,444	4.84	4.83	1	32	1,748	4.88	5.15	1	39
Concentration index (CI) Negative		1008	.049	.1	0	.639	1283	.064	.116	0	.736
Concentration index (CI) Positive		1008	.009	.011	0	.149	1283	.009	.013	0	.183
Total number of negative events		1008	6.518	6.735	2	50	1283	7.62	7.889	2	47
Total number of positive events		1008	2.728	1.82	0	15	1283	2.668	1.729	0	15
Years since last negative event		1008	5.801	5.943	1	34	1283	5.203	5.445	1	38
Years since last positive event		1008	12.715	10.564	0	48	1283	14.288	11.104	0	47
Age at interview		1,444	46.81	10.96	18	65	1,748	46.11	11.17	18	65
Number of kids at interview		1,444	1.65	1.26	0	14	1,748	1.63	1.18	0	8
Education at interview	Primary or low secondary	64	6.48				143	8.18			
	Upper secondary	684	53.32				1,018	58.24			
	Tertiary	696	40.19				587	33.58			
Born in Switzerland	Born in Switzerland	1,123	77.77				1,329	76.03			
	Born abroad	321	22.23				419	23.97			
Pre-trajectory mental health	No mental issues	1,441	99.79				1,741	99.60			
	Mental issues before age 15	3	0.21				7	0.40			
Living arrangement at age 16	Lived with both parents	1,195	82.76				1,430	81.81			
	Lived with lone parent	193	13.37				222	12.70			
	Lived alone or other living arrangement	44	3.05				73	4.18			
	Missing living arrangement	12	0.83				23	1.32			
Marital status at interview	Single, never married	292	20.22				328	18.76			
	Married or Reg. partnership	1,014	70.22				1,134	64.87			
	Divorced or Separated	125	8.66				241	13.79			
	Widow	13	0.90				45	2.57			
Employment at interview	Employed	1,286	89.06				1,369	78.32			
	Unemployed	20	1.39				37	2.12			
	Not in labor force	138	9.56				342	19.57			

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data.

Table A3: Number of Events by Domain and Gender

	Men		Women		All	
	N	%	N	%	N	%
Health issues	8,188	27.80	11,839	31.42	20,027	29.83
Residential moves	8,615	29.25	10,260	27.23	18,875	28.11
Work	4,249	14.43	6,054	16.07	10,303	15.35
Family	8,402	28.53	9,529	25.29	17,931	26.71
	29,454	100	37,682	100	67,136	100

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data.

Table A4: Association between concentration of critical events and Subjective Wellbeing. Linear model.

	Men			Women		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Concentration index (CI), mean centered	-1.439** (-2.616 - -0.263)	-1.292* (-2.506 - -0.078)	-1.051 (-2.251 - 0.148)	-2.336*** (-3.227 - -1.445)	-2.072*** (-2.985 - -1.159)	-1.810*** (-2.704 - -0.916)
Concentration index (CI) squared	-0.181 (-2.543 - 2.182)	-0.205 (-2.640 - 2.229)	-0.206 (-2.656 - 2.244)	2.408*** (0.908 - 3.907)	2.195** (0.679 - 3.712)	2.122** (0.630 - 3.613)
Time since last event		0.011 (-0.000 - 0.022)	0.010 (-0.001 - 0.021)		0.015** (0.004 - 0.026)	0.012* (0.002 - 0.023)
Age (18–65 years), mean centered	0.007* (0.000 - 0.015)	0.007 (-0.000 - 0.015)	0.012** (0.004 - 0.021)	0.012*** (0.006 - 0.018)	0.010*** (0.004 - 0.017)	0.016*** (0.008 - 0.024)
Age squared	0.000 (-0.000 - 0.001)	0.001 (-0.000 - 0.001)	0.001*** (0.000 - 0.002)	0.000 (-0.000 - 0.001)	0.000 (-0.000 - 0.001)	0.001*** (0.001 - 0.002)
Born in Switzerland (Ref.)						
Not born in Switzerland	-0.132 (-0.351 - 0.088)	-0.133 (-0.352 - 0.087)	-0.123 (-0.331 - 0.085)	-0.449*** (-0.646 - -0.252)	-0.439*** (-0.635 - -0.243)	-0.387*** (-0.575 - -0.199)
Primary or low secondary education (Ref.)						
Upper secondary education	0.591* (0.009 - 1.172)	0.527 (-0.056 - 1.109)	0.571* (0.044 - 1.097)	0.496** (0.176 - 0.816)	0.455** (0.142 - 0.768)	0.388** (0.077 - 0.699)
Tertiary education	0.777** (0.199 - 1.354)	0.708** (0.130 - 1.287)	0.686** (0.167 - 1.205)	0.494** (0.165 - 0.823)	0.455** (0.131 - 0.779)	0.385** (0.062 - 0.708)
No mental issues (Ref.)						
Mental issues before age 15		-1.501 (-3.217 - 0.215)	-1.391 (-3.202 - 0.420)		-0.203 (-1.330 - 0.924)	-0.090 (-1.268 - 1.089)
Lived with both parents at age 15 (Ref.)						
Lived with lone parent		0.034 (-0.203 - 0.271)	0.029 (-0.203 - 0.261)		-0.338** (-0.590 - -0.086)	-0.256* (-0.491 - -0.020)
Lived alone or other living arrangement		0.010 (-0.360 - 0.381)	-0.019 (-0.420 - 0.383)		0.128 (-0.159 - 0.415)	0.189 (-0.093 - 0.472)
Missing living arrangement		-0.196 (-0.925 - 0.534)	-0.276 (-1.114 - 0.562)		-0.094 (-0.511 - 0.322)	-0.063 (-0.525 - 0.400)
Number of kids at the time of interview			-0.082 (-0.167 - 0.003)			-0.000 (-0.065 - 0.064)
Single at the time of interview (Ref.)						
Married or in registered partnership			0.527*** (0.276 - 0.777)			0.564*** (0.348 - 0.780)
Divorced or Separated			-0.062 (-0.448 - 0.324)			-0.026 (-0.309 - 0.257)
Widow			-1.226** (-2.200 - -0.252)			-0.422 (-0.922 - 0.079)
Employed at the time of interview (Ref.)						
Unemployed			-0.632 (-1.389 - 0.125)			-1.145*** (-1.852 - -0.438)
Out of the labor force			-0.407** (-0.709 - -0.105)			-0.400*** (-0.585 - -0.216)
Constant	7.525*** (6.926 - 8.124)	7.514*** (6.910 - 8.118)	7.297*** (6.723 - 7.872)	7.800*** (7.459 - 8.142)	7.797*** (7.460 - 8.133)	7.549*** (7.160 - 7.938)
Observations	1,008	1,008	1,008	1,283	1,283	1,283
R ²	0.062	0.067	0.111	0.070	0.079	0.138

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Robust standard errors.

Table A5: Association between concentration of negative and positive critical events and Subjective Wellbeing. Linear model. Men

	Men				
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Concentration index (CI) Negative, mean centered	-3.156*** (-4.212 - -2.100)	-2.646*** (-3.776 - -1.517)	-2.214*** (-3.346 - -1.081)	-2.631*** (-3.756 - -1.506)	-2.269*** (-3.414 - -1.125)
Concentration index (CI) Positive, mean centered	-4.088 (-11.789 - 3.614)	-3.957 (-11.539 - 3.624)	-3.445 (-12.325 - 5.435)	-3.862 (-11.500 - 3.777)	-3.833 (-12.929 - 5.262)
Concentration index (CI) Negative* Concentration index (CI) Positive				5.728 (-87.207 - 98.663)	-22.931 (-121.305 - 75.443)
Time since last Negative event		0.012* (0.000 - 0.023)	0.011 (-0.000 - 0.022)	0.012* (0.000 - 0.023)	0.011 (-0.000 - 0.022)
Time since last Positive event		0.014** (0.005 - 0.023)	0.010* (0.001 - 0.020)	0.014** (0.005 - 0.023)	0.010* (0.001 - 0.020)
Age (18–65 years), mean centered		-0.002 (-0.012 - 0.008)	0.004 (-0.006 - 0.015)	-0.002 (-0.011 - 0.008)	0.004 (-0.006 - 0.015)
Age squared		0.000 (-0.000 - 0.001)	0.001** (0.000 - 0.001)	0.000 (-0.000 - 0.001)	0.001** (0.000 - 0.001)
Born in Switzerland (Ref)					
Not born in Switzerland		-0.135 (-0.354 - 0.085)	-0.129 (-0.337 - 0.079)	-0.134 (-0.354 - 0.085)	-0.129 (-0.337 - 0.079)
Primary or low secondary education (Ref)					
Upper secondary education		0.510 (-0.068 - 1.087)	0.556* (0.033 - 1.080)	0.510 (-0.068 - 1.089)	0.554* (0.030 - 1.079)
Tertiary education		0.700** (0.127 - 1.274)	0.681** (0.164 - 1.197)	0.701** (0.127 - 1.274)	0.680** (0.163 - 1.197)
No mental issues (Ref)					
Mental issues before age 15		-1.371 (-3.107 - 0.365)	-1.299 (-3.114 - 0.516)	-1.360 (-3.113 - 0.392)	-1.341 (-3.174 - 0.492)
Lived with both parents (Ref)					
Lived with lone parent		0.013 (-0.224 - 0.249)	0.014 (-0.218 - 0.246)	0.014 (-0.223 - 0.251)	0.011 (-0.221 - 0.243)
Lived alone or other living arrangement		0.001 (-0.369 - 0.371)	-0.020 (-0.417 - 0.377)	0.003 (-0.369 - 0.374)	-0.027 (-0.428 - 0.373)
Missing living arrangement		-0.071 (-0.840 - 0.697)	-0.162 (-1.026 - 0.702)	-0.073 (-0.842 - 0.696)	-0.158 (-1.022 - 0.706)
Number of kids at the time of interview			-0.062 (-0.175 - 0.051)		-0.063 (-0.176 - 0.050)
Single at the time of interview (Ref)					
Married or in registered partnership			0.486*** (0.237 - 0.736)		0.495*** (0.246 - 0.743)
Divorced or Separated			-0.125 (-0.519 - 0.269)		-0.113 (-0.510 - 0.283)
Widow			-1.209** (-2.167 - -0.252)		-1.220** (-2.189 - -0.250)
Employed at the time of interview (Ref)					
Unemployed			-0.636 (-1.399 - 0.127)		-0.648 (-1.409 - 0.113)
Out of the labor force			-0.340* (-0.648 - -0.032)		-0.342* (-0.651 - -0.033)
Constant	8.187*** (8.110 - 8.264)	7.350*** (6.741 - 7.960)	7.173*** (6.579 - 7.767)	7.350*** (6.741 - 7.960)	7.168*** (6.575 - 7.761)
Observations	1,008	1,008	1,008	1,008	1,008
R-squared	0.047	0.075	0.115	0.075	0.116

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Robust standard errors.

Note: In Models 4-5, the estimated coefficients of the interaction term between the mean centered indexes of concentration (CIs) of negative and positive events seems large. However, this is because of the CI is, by definition, between zero and one. Therefore, the centered CIs included in the models are two very small numbers (range of -0.057 – 0.58 and -0.009 – 0.13, respectively). The multiplication between the two is an even smaller number (ranges -0.007 – 0.01) therefore the effect of an increase in 1 unit in the interaction term, as reported in the regression model, is a huge, unrealistic, increase. For a more realistic increase in the centered CIs of 0.01 for instance, the point estimate would be of a 0.23 reduction in life satisfaction for men.

Table A5 (Cont'd): Association between concentration of critical events by valence and Subjective Wellbeing. Linear model. Women

	Women				
	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)
Concentration index (CI) Negative, mean centered	-2.138*** (-2.896 - -1.380)	-1.656*** (-2.408 - -0.905)	-1.267*** (-1.996 - -0.538)	-1.699*** (-2.442 - -0.956)	-1.308*** (-2.031 - -0.585)
Concentration index (CI) Positive, mean centered	4.221 (-0.756 - 9.197)	5.819** (0.938 - 10.701)	4.023 (-1.371 - 9.416)	7.236** (2.350 - 12.122)	5.456 (-0.368 - 11.279)
Concentration index (CI) Negative* Concentration index (CI) Positive				-68.026** (-121.139 - -14.913)	-54.686* (-107.154 - -2.218)
Time since last Negative event		0.017*** (0.007 - 0.028)	0.015** (0.004 - 0.025)	0.017*** (0.006 - 0.028)	0.015** (0.004 - 0.025)
Time since last Positive event		0.008* (0.000 - 0.016)	0.004 (-0.005 - 0.012)	0.009* (0.001 - 0.017)	0.004 (-0.004 - 0.013)
Age (18–65 years), mean centered		0.006 (-0.003 - 0.014)	0.015*** (0.006 - 0.025)	0.006 (-0.003 - 0.015)	0.016*** (0.006 - 0.025)
Age squared		0.000 (-0.000 - 0.001)	0.001*** (0.000 - 0.002)	0.000 (-0.000 - 0.001)	0.001*** (0.000 - 0.001)
Born in Switzerland (Ref.)					
Not born in Switzerland		-0.438*** (-0.634 - -0.243)	-0.392*** (-0.580 - -0.204)	-0.440*** (-0.636 - -0.245)	-0.394*** (-0.582 - -0.207)
Primary or low secondary education (Ref.)					
Upper secondary education		0.491** (0.174 - 0.807)	0.397** (0.086 - 0.709)	0.501*** (0.186 - 0.816)	0.406** (0.095 - 0.716)
Tertiary education		0.505** (0.179 - 0.830)	0.396** (0.072 - 0.719)	0.514*** (0.189 - 0.838)	0.403** (0.080 - 0.725)
No mental issues (Ref.)					
Mental issues before age 15		-0.154 (-1.435 - 1.127)	-0.057 (-1.355 - 1.242)	-0.236 (-1.492 - 1.019)	-0.126 (-1.406 - 1.154)
Lived with both parents (Ref.)					
Lived with lone parent		-0.332** (-0.586 - -0.078)	-0.252* (-0.490 - -0.014)	-0.301* (-0.554 - -0.048)	-0.228 (-0.465 - 0.009)
Lived alone or other living arrangement		0.110 (-0.182 - 0.402)	0.183 (-0.105 - 0.471)	0.105 (-0.187 - 0.396)	0.179 (-0.109 - 0.466)
Missing living arrangement		-0.058 (-0.486 - 0.371)	-0.038 (-0.510 - 0.434)	-0.071 (-0.508 - 0.365)	-0.052 (-0.527 - 0.424)
Number of kids at the time of interview			-0.023 (-0.094 - 0.048)		-0.028 (-0.100 - 0.045)
Single at the time of interview (Ref.)					
Married or in registered partnership			0.534*** (0.310 - 0.759)		0.524*** (0.298 - 0.750)
Divorced or Separated			-0.048 (-0.339 - 0.242)		-0.055 (-0.346 - 0.236)
Widow			-0.472 (-0.981 - 0.037)		-0.490 (-1.002 - 0.021)
Employed at the time of interview (Ref.)					
Unemployed			-1.134*** (-1.836 - -0.433)		-1.102** (-1.810 - -0.395)
Out of the labor force			-0.420*** (-0.607 - -0.233)		-0.420*** (-0.607 - -0.234)
Constant	8.292*** (8.226 - 8.359)	7.722*** (7.374 - 8.070)	7.635*** (7.247 - 8.023)	7.705*** (7.358 - 8.053)	7.634*** (7.248 - 8.021)
Observations	1,283	1,283	1,283	1,283	1,283
R-squared	0.029	0.079	0.135	0.082	0.137

Source: Authors' elaboration based on Swiss Household Panel 2013 biographical data and 2014–2017 Swiss Household Panel data. Robust standard errors.

Note: In Models 4-5, the estimated coefficients of the interaction term between the mean centered indexes of concentration (CIs) of negative and positive events seems large. However, this is because of the CI is, by definition, between zero and one. Therefore, the centered CIs included in the models are two very small numbers (range of -0.057 – 0.58 and -0.009 – 0.13, respectively). The multiplication between the two is an even smaller number (ranges -0.007 – 0.01) therefore the effect of an increase in 1 unit in the interaction term, as reported in the regression model, is a huge, unrealistic, increase. For a more realistic increase in the centered CIs of 0.01 for instance, the point estimate would be of a 0.55 reduction in life satisfaction for women.