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The Effects of Life Events and Socioeconomic Position in Childhood and Adulthood on Successful Aging

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Abstract

Objectives: Building on social stress theory, this study has 2 aims. First, we aim to estimate the effects of stressful life events in childhood and adulthood on Successful Aging (SA). Second, we examine how unequal exposure to such life events between individuals with different socioeconomic position (SEP) contributes to socioeconomic inequalities in SA.
Method: We used 16-year longitudinal data from 2,185 respondents aged 55–85 years in 1992 in the Dutch nationally representative Longitudinal Aging Study Amsterdam. Measurement of SA was based on earlier work, in which we integrated trajectories in 9 indicators of functioning into an index of SA. Using path analysis, we investigated direct and indirect effects of parental and adulthood SEP as well as of self-reported childhood and adulthood life events on SA.
Results: Almost all included life events had negative direct effects on SA. Parental SEP had no direct effect on SA, whereas adulthood SEP had. Higher Parental SEP increased the likelihood of parental problems and parental death in childhood, resulting in negative indirect effects on SA. Higher adulthood SEP had both positive and negative indirect effects on SA, through increasing the likelihood of divorce and unemployment, but decreasing the likelihood of occupational disability.
Discussion: SEP and particular stressful life events are largely, but not entirely independent predictors of SA. We found that high and low SEP may increase exposure to particular events that negatively affect SA. Findings suggest that low (childhood) SEP and stressful life events are interrelated factors that may limit individual opportunities to age successfully.

Keywords: Inequalities—Life course—Path analysis—Stress—Trajectories of functioning

The concept of Successful Aging (SA) aims at a holistic assessment of the aging process by capturing to what extent individuals maintain or regain high levels of physical, mental, and social functioning during later life (Rowe & Kahn, 1997). As an important advancement in research on SA, Rowe and Kahn (2015) recently expressed the need to investigate how individual opportunities to age successfully are shaped by the interplay between social and individual factors across the life course. This article partly addresses this need by examining the effects of stressful life events in childhood and adulthood on SA, while also

investigating to what extent socioeconomic conditions affect individual exposure to such events. Regarding the relationships between socioeconomic position (SEP) and life events, we build on social stress theory, which regards chronic and acute stressors as consequences of social organization (Aneshensel, 1992). Specifically, we study pathways in which SEP affects exposure to life events (social causation), and pathways in which stressful life events affect subsequent socioeconomic conditions (social selection). We hypothesize that both kinds of pathways may affect SA.

Life Events and SA

Stressful events at any point in the life course may have important consequences for psychosocial and physical functioning in later life (Elder & Rockwell, 1979; Pearlin, Schieman, Fazio, & Meersman, 2005). Life events such as the death of significant others may negatively affect a broad range of domains of functioning, including emotional (Kraaij, Arensman, & Spinhoven, 2002), cognitive (Ritchie et al., 2011), physical (Krause, 1998), and social functioning (Savikko, Routasalo, Tilvis, Strandberg, & Pitkälä, 2005), and disease (Schafer & Ferraro, 2012). The reason that life events are linked to such a broad range of outcomes is that they not only elicit stressful emotional and physiological responses in individuals but also disrupt daily routines (Pearlin et al., 2005). Moreover, a negative life event is often the culmination of a more or less lengthy process of stress accumulation, which may explain their considerable effects on health and functioning (Aneshensel, 1992). As such, it is has been demonstrated that not only "recent" but also events in childhood or adolescence can bear life-long consequences for health in old age (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003).

The large majority of previous studies have demonstrated effects of life events only on single health outcomes within different study populations. Although this is valuable for assessing particular emotional or physical responses to stressors, we cannot infer from this literature to what extent life events affect the overall aging process. SA is fundamentally a multidimensional concept, which aims to assess the quality of overall human aging and integrates three key domains of functioning in old age, that is, physical, mental, and social functioning (Bowling, 2007; Rowe & Kahn, 1997). Thus, one aim of this study is to estimate the effects of life events on overall functioning, as reflected by a multidimensional and longitudinal measure of SA (Kok, Aartsen, Deeg, & Huisman, 2015).

We are aware of two studies that investigated effects of life events on SA. Hsu (2011) found that recent (<10 years) events such as widowhood, offspring loss, and divorce were negatively related to various single indicators of SA. However, this study did not include earlier life events and did not estimate effects of life events on overall individual functioning. Li and colleagues (2006) found that a higher number of experienced life events during the life course were negatively associated with a composite measure of SA in a bivariate model, but not after adjusting for gender and age. This was possibly due to age and/or gender being strongly associated with both the number of life events and SA. The effects of particular events on SA remained unclear. Our study extends these two studies by including multiple life events in childhood and adulthood. Moreover, we advance understanding of inequalities in SA by situating the occurrence of life events within individual socioeconomic conditions early and later in life.

Life Events Within the Dynamics of Socioeconomic Conditions

Exposure to chronic stressors and stressful life events is not merely due to chance, but is patterned by socioeconomic conditions. Persons with a low SEP tend to be exposed more often to sources of chronic stress such as economic adversity, adverse working conditions, and deprived living environments (Baum, Garofalo, & Yali, 1999). Within this context of elevated chronic stress, stressful life events such as family disruption or unemployment are also more likely to arise (Aneshensel, 1992; Hatch & Dohrenwend, 2007). Moreover, persons with low SEP often possess less coping resources and have less access to social support to offset or avoid accumulation of stressors (Aneshensel, 1992). A higher exposure to stressful events may therefore be one crucial mechanism linking SEP to SA (Lantz, House, Mero, & Williams, 2005; Pearlin, Menaghan, Lieberman, & Mullan, 1981). This structural perspective on social stress (Aneshensel, 1992) implies that studies should clarify the interrelated roles of SEP and life events in childhood and adulthood, and how these affect the aging process.

In the current study, we investigate several pathways linking SEP and life events in childhood and adulthood to SA. Our approach may clarify at least three issues. First, many earlier studies have neglected the fact that not all types of life events are similarly affected by SEP (Elder & Rockwell, 1979). Although studies show that lower SEP groups are exposed to a higher number of life events on average (e.g., Hatch & Dohrenwend, 2007; Lantz et al., 2005), the exposure to particular events such as widowhood, divorce, and assault not necessarily differ between socioeconomic groups (Lantz et al., 2005), and divorce may be more prevalent in higher rather than lower socioeconomic groups (De Graaf & Kalmijn, 2006; Fu, 2006). In our study, we therefore investigate seven specific life events, rather than summing the number of experienced life events as a proxy for lifetime stress exposure.

Second, many studies did not explicitly examine the social selection hypothesis, which states that exposure to stressors may negatively affect SEP rather than vice versa (Aneshensel, 1992). For example, parental divorce and parental death in childhood have been shown to negatively affect educational, occupational, and financial attainment later in life (Amato & Anthony, 2014; Ross & Mirowsky, 1999). Life events in childhood may also make people more susceptible to particular life events later in life. For instance, children whose parents have divorced have been shown to divorce more often themselves (Dronkers & Harkonen, 2008). It has not been studied before whether such mechanisms indirectly affect SA. Therefore, our study examines both the possibility that SEP affects life events and that life events in childhood affect adulthood SEP or stressful events in adulthood.

Third, previous studies of socioeconomic inequalities in SA suggest that the direct effects of adulthood SEP on SA

are stronger than those of parental SEP (Brandt, Deindl, & Hank, 2012; Britton, Shipley, Singh-Manoux, & Marmot, 2008; Pruchno & Wilson-Genderson, 2015). However, measures of childhood and adulthood socioeconomic conditions often differed in previous studies, limiting a clear comparison of their effects on SA. It is known that different components of SEP (e.g., education, occupation, income) may influence partly different indicators of SA. This suggests that multiple indicators of SEP are required to accurately capture the overall effects of SEP on SA (Jang, Choi, & Kim, 2009). In our study, we use comparable and multi-indicator measures of childhood (i.e., parental) and adulthood SEP.

In summary, the present study answers two research questions: to what extent do particular life events affect SA, and how are socioeconomic inequalities in SA shaped by differential exposure to life events between groups with different SEP? Specifically, we test three hypotheses, summarized in a life-course model (Figure 1):

Hypothesis 1: Stressful life events in childhood and adulthood negatively affect SA (direct effects), whereas higher parental and adulthood SEP decrease the likelihood of experiencing such events in childhood and adulthood, respectively (indirect effects: social causation).

Hypothesis 2: Life events in childhood negatively affect adulthood SEP and therefore indirectly and negatively affect SA. Parental problems in childhood increase the likelihood of divorce in adulthood and therefore indirectly and negatively affect SA (indirect effects: social selection).

Hypothesis 3: Higher parental SEP and higher adulthood SEP positively affect SA (direct effects). Additionally, higher parental SEP positively affects adulthood SEP and therefore indirectly and positively affects SA (indirect effect).

Method

Data and Study Sample

We employed data from the nationally representative Longitudinal Aging Study Amsterdam (LASA; Huisman et al., 2011). In 1992–1993, 3,107 respondents were included in a random sample of individuals aged

Figure 1. Hypothesized life-course model.

55–85 years (cooperation rate 62%). Respondents lived in 11 municipalities in the Netherlands that reflect the national sociogeographic variation. The oldest old and men were oversampled. In 3-year cycles, data were acquired during interviews at home, in written questionnaires, and in medical interviews.

Our operational definition of SA was developed earlier (Kok et al., 2015) and is based on data from the baseline measurement in 1992–1993 (N = 3,107) and follow-up measurements in 1995–1996 (N = 2,545), 1998–1999 (N = 2,076), 2001–2002 (N = 1,691), 2005–2006 (N = 1,257), and 2008–2009 (N = 985). In-between waves, on average about 12% of the respondents died and 8% could not be contacted, were too frail to participate or refused to participate. Calculation of trajectories of functioning constituting the measurement of SA was performed only for respondents who had data for at least two waves for a specific indicator of SA (N = 2,213 to N = 2,240 among indicators). For these respondents, 16-year trajectories were calculated using maximum likelihood estimation. The final study sample included respondents for which at least eight trajectories of SA were calculated (n = 2,185). The present analyses are based on the same study sample.

Measurements

Successful Aging

The "Successful Aging-index" is based on nine indicators of physical, mental, and social functioning (Kok et al., 2015). The index ranges from 0 to 9 and essentially expresses the number of indicators for which individual respondents had a favorable ("successful") 16-year trajectory. The premise of this index is that the more favorable trajectories one has, the more "successful" one was. Here, we provide a summary description of the composition and calculation of the SA-index. Details can be found in the online Supplementary Material and in previous work (Kok et al., 2015).

The SA-index is based on the widely adopted Rowe and Kahn (1997) model of SA, but incorporates several suggestions for extending this model and its measurement (Martinson & Berridge, 2015). First and foremost, lay perspectives on SA (e.g., Phelan, Anderson, LaCroix, & Larson, 2004) led us to exclude the absence of disease as a requirement for SA and to include holistic and subjective indicators such as self-rated health and life satisfaction. Excluding chronic diseases was done because few older adults age without them, and many older adults feel that having a chronic disease does not preclude successful aging (Young, Frick, & Phelan, 2009). Second, "success" was based on long-term trajectories rather than a cross-sectional measurement of functioning, allowing limited functional decline as well as recovery from decline to signify SA. Third, we expressed SA on a continuum rather than as a dichotomy, which allows SA in one domain despite less favorable functioning in other domains (Bowling, 2007).
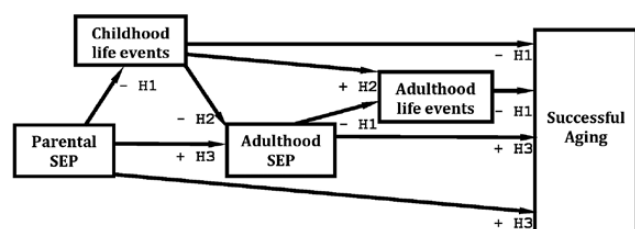
The following nine indicators are included in the SA-index. Functional Limitations reflects the extent to which respondents can perform six daily activities. Self-rated Health assesses respondents' health "in general." Depressive Symptoms are measured by the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Satisfaction with Life reflects how satisfied respondents are with their life "lately." Cognitive Functioning is measured by the Mini Mental State Examination (MMSE; Folstein & Folstein, 1975). Social Loneliness is assessed with a five-item subscale of the De Jong-Gierveld Loneliness Scale (De Jong Gierveld & Van Tilburg, 1999). Social Activity reflects the frequency of participation in thirteen types of organizations per month. Finally, Emotional Support Given and Instrumental Support Given measure how often respondents talked to their nine most frequently contacted network members (excluding the partner) about their personal experiences or feelings (emotional support), and how often they helped them with daily tasks in and around the house (instrumental support; Van Tilburg, 1998). More details are available in the online Supplementary Material.

For each of the SA indicators, latent class growth analysis in Mplus 6.0 (Muthén & Muthén, 2010) was conducted to identify subgroups of respondents with a distinct type of trajectory. For each indicator, trajectories with stable high levels of functioning, limited decline, or recovery from a low level of functioning were evaluated as "successful" trajectories. Trajectories were calculated separately for men and women. Detailed results are available in Supplementary Material. The SA-index was constructed by summing the individual posterior probabilities of belonging to a "successful" class for each of the nine indicators, thus ranging from 0.00 to 9.00. This score reflects the number of "successful" trajectories of functioning, adjusted for the statistical uncertainty underlying latent class membership. Sum scores for respondents with one missing indicator were divided by eight and then multiplied by nine.

Life events

We selected life events that (a) rank highly in terms of distress and influence on people's daily lives (e.g., Tennant & Andrews, 1976); (b) are likely to occur more often in particular socioeconomic groups; and (c) had a prevalence >5% in our sample. All life events occurred before the baseline measurement in 1992–1993.

In line with the notion of childhood and adolescence as "sensitive periods" (Kuh et al., 2003), we narrowed down our definition of childhood events to those that took place before the respondent was 18 years old. Parental Death in Childhood expressed whether one or both parents had died in childhood. This event was included because low SEP is associated with early mortality (Huisman, Read, Towriss, Deeg, & Grundy, 2013). Parental Problems in Childhood expressed whether respondents reported "divorce of parents," "severe discord between parents," or

"other problems at home" during childhood. This event was included because of inconclusive evidence on whether divorce more often occurs with lower SEP or rather with higher SEP (Conger, Conger, & Martin, 2010; De Graaf & Kalmijn, 2006).

Adulthood family-related life events included Divorce (or separation), Widowhood, and Death of a Child, expressing whether respondents had experienced this at least once during their lives. Because lower SEP is associated with higher mortality and because of social reproduction of SEP (Blau, 1977), we expected a higher prevalence of widowhood and the loss of a child with lower adulthood SEP.

Occupational life events included Unemployment and Occupational Disability. These events reflected whether respondents ever received unemployment or occupational disability benefits for at least 3 months. Because unemployment benefits do not apply when employees voluntarily resign, we assume that unemployment was involuntary. We expected such events to occur more often with lower SEP groups due to less secure and physically more demanding jobs (Schrijvers, van de Mheen, Stronks, & Mackenbach, 1998).

Socioeconomic Position

We assessed parental SEP by father's education, mother's education, and father's occupational prestige. For adulthood SEP, we included respondents' education, occupational prestige of their longest-held job, and partner's education. Education of parents, respondent, and partner were measured in years (range 5–18). Occupational prestige was based on job type, coded into a prestige scale (Sixma & Ultee, 1983; range 13–82).

Before exporting the prepared data set to Mplus, we acquired complete data on SEP by averaging SEP values from 20 imputed data sets obtained by multiple imputation in SPSS. Comparison of results between models with original and imputed data revealed no significant differences in estimates. Proportions of data imputed were 4% for father's and own occupational prestige (those who never had a job [$n = 229$] were kept as missing); 6% for father's education and mother's education, and 31% for partner's education (those who never had a partner [$n = 6$] were kept as missing). We imputed partner's education because we aimed to measure SEP representative for adulthood rather than at baseline. Finally, we constructed indices of parental and adulthood SEP by calculating the mean of the three standardized SEP indicators. The resulting mean scores were standardized again, such that a change of one unit in this final SEP index equals one standard deviation with a mean of exactly zero.

Statistical Procedure

We first estimated the "total" effect (without intervening variables) of each predictor on SA in separate regression models, adjusted for baseline age only. Then, on the basis

of our hypothetical model (Figure 1), we constructed a path model including all available variables (Figure 2). Starting with solely the effect of Parental SEP on SA, we gradually increased model complexity until the full path model was specified. In this process, we checked all estimated paths for values that might indicate model misspecification, for example, high standard errors and negative variances (Lei & Wu, 2007). We encountered no such problems.

In the path model (Figure 2), single-headed arrows indicate an assumed causal direction, where the dependent variable is regressed on the independent variable. Double-headed arrows assume no causal direction between variables, and only adjust for their potentially associated residuals. The latter was done for Divorce and Widowhood and for Unemployment and Occupational Disability, because both sets of events are likely to be mutually exclusive.

The path model was adjusted for baseline age. Because the SA-index was calculated separately for men and women, and SEP and the prevalence of life events differed between men and women, we tested for each path whether the effect differed between genders. If we found such a difference ($p < .05$), we estimated the path separately for men and women. If coefficients did not differ, we constrained the path to be estimated equally, adjusted for gender.

Path analyses were carried out with Mplus version 6 (Muthén & Muthén, 2010). Because the full model includes combinations of dichotomous and continuous variables, we used a weighted least squares with mean adjustment estimator. Standard errors and statistical significance of indirect effects were obtained using bootstrapping with 1,000 bootstrap draws. This method provides more accurate estimates and more power to detect significant indirect effects than

Table 1. Characteristics of the Study Sample (1,033 Men and 1,152 Women)

Variable	Observed range	*n*	Men Mean (*SD*) or %	Women Mean (*SD*) or %
Age in 1992	55–85	2,185	69.0 (8.59)	69.4 (8.56)
SA-index				
SA-index score	0.01–9.00	2,185	5.6 (1.84)	5.2 (1.91)
% with a successful trajectory in				
Functional limitations		2,182	68.4	53.8
Self-rated health		2,185	70.9	60.1
Cognitive functioning		2,184	75.6	72.0
Depressive symptoms		2,183	70.7	59.4
Satisfaction with Life		2,077	89.4	85.9
Social loneliness		2,185	80.2	76.9
Emotional support given		2,185	68.2	66.2
Instrumental support given		2,185	34.8	21.8
Social activity		2,173	18.7	23.5
Parental SEP	–1.31 to 5.35	2,185	–0.00 (0.97)	0.00 (1.02)
Father's education	5–18 years	2,185	7.5 (2.84)	7.4 (2.91)
Mother's education	5–18 years	2,185	6.3 (1.72)	6.3 (1.84)
Occupational prestige	13–82	2,185	36.9 (13.24)	37.4 (13.6)
Adulthood SEP	–1.61 to 3.71	2,185	0.17 (1.01)	–0.15 (0.97)
Education	5–18 years	2,185	9.8 (3.39)	8.2 (3.04)
Partner's education	5–18 years	2,179	8.6 (2.65)	9.4 (2.76)
Occupational prestige	13–82	1,956	41.3 (14.83)	32.4 (13.32)
Life events				
Parental Problems in Childhood	0–1	2,123	6.3	8.9
Parental Death in Childhood	0–1	2,051	14.2	14.0
Divorce	0–1	2,052	9.8	8.4
Widowhood	0–1	2,052	15.0	38.2
Unemployment	0–1	1,918	13.3	5.4
Occupational Disability	0–1	1,919	16.8	7.6
Death of a Child	0–1	2,148	12.3	11.7
Number of life events	0–4	2,151	0.9 (0.90)	0.9 (0.85)
	0	857	41.5	38.3
	1	826	37.1	39.6
	2	370	16.1	18.1
	3 or 4	98	5.2	4.0

Note: SA = Successful Aging; SEP = socioeconomic position.

Table 2. Effects of Life Events and SEP on the SA-Index for the Study Sample (*n* = 2,185)

Predictor	Total effect[a]		Direct effect in full model (Figure 2)	
	b (*SE*)		*b* (*SE*)	
Childhood life events				
Parental Problems (0–1)[b]	–0.77 (0.14)***		–0.31 (0.07)***	
Parental Death (0–1)	–0.27 (0.11)*		–0.13 (0.06)*	
Adulthood life events				
Divorce (0–1)	–0.53 (0.13)***		–0.37 (0.08)***	
Widowhood (0–1)	–0.49 (0.09)***		–0.31 (0.07)***	
Unemployment (0–1)	–0.34 (0.13)**		–0.25 (0.07)***	
Occupational Disability (0–1)	–0.58 (0.12)***		–0.32 (0.06)***	
Death of a Child (0–1)	0.11 (0.11)		0.08 (0.06)	
SEP				
Parental SEP (–1.31 to 5.35)	0.05 (0.04)		–0.07 (0.05)	
	Men	Women	Men	Women
Adulthood SEP (–1.61 to 3.71)	0.16 (0.05)**	0.29 (0.05)***	0.20 (0.07)**	0.48 (0.08)***
Model fit				
Degrees of freedom			68	
RMSEA (90% CI)			0.024 (0.015–0.032)	
CFI			0.98	
TLI			0.96	

Notes: CFI = comparative fit index; CI = confidence interval; RMSEA = root mean square error of approximation; SA = Successful Aging; SEP = socioeconomic position; TLI = Tucker Lewis index.
[a]Adjusted for baseline age only.
[b]Numbers in parentheses are variable ranges.
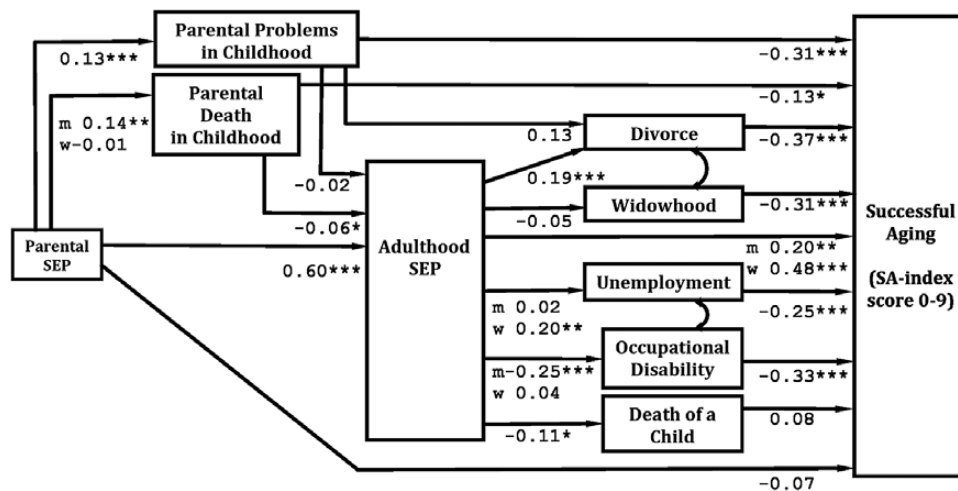**p < .05, **p < .01, ***p < .001.*

Figure 2. Results of path analysis for men (*n* = 1,033) and women (*n* = 1,152). Coefficients from SEP to life events are probit coefficients. Model is adjusted for baseline age, and effects that were equal for men and women were adjusted for gender. **p < .05, **p < .01, ***p < .001.* m = men; SEP = Socioeconomic Position; w = women.

the Baron and Kenny approach and the Sobel test (Preacher & Hayes, 2008). Because the direction of indirect effects is apparent from multiplying the coefficients of each element included in them, we used one-tailed significance testing for indirect effects, reflected by 90% bootstrapped confidence intervals (CIs). Effects of continuous (SEP) on dichotomous variables (life events) were expressed as probit coefficients,

where a positive value expresses a higher likelihood of the event with higher SEP, and a negative value expresses a lower likelihood with higher SEP.

In order to provide a robust estimation of model fit, we evaluated three goodness-of-fit indicators: the root mean square error of approximation (RMSEA; cutoff < 0.05), the comparative fit index (CFI; >0.95), and the Tucker Lewis

index (TLI; >0.95; Schermelleh-Engel, Moosbrugger, & Müller, 2003). These indicators are relatively insensitive to sample size and favor parsimonious models over complex ones (Lei & Wu, 2007).

To further explore the effects of SEP and life events on SA, we conducted nine logistic regression analyses, estimating the independent effects of SEP and life events on the odds of having a successful trajectory for each separate indicator of SA. A dummy variable expressing whether the respondent ever had a paid job was added in order to retain those who never had a paid job in the analyses. Detailed results can be found in Supplementary Material.

Results

Descriptive Analyses

The mean age was 69.0 (*SD* = 8.59) for men and 69.4 (*SD* = 8.56) for women (Table 1). On average, men had a higher number of successful trajectories of functioning than women (SA-index score: 5.6, *SD* = 1.84 vs. 5.2, *SD* = 1.91). The prevalence of life events varied between 5.4% for Unemployment and 38.2% for Widowhood. We observed gender differences in the prevalence of Parental Problems in Childhood, Widowhood, Unemployment, and Occupational Disability. About 41.5% of men and 38.3% of women experienced none, and 5.2% of men and 4.0% of women experienced three or four out of seven life events. On average, men who reported three or four life events had 1.5 successful trajectories less than men who reported no events. This difference was about 1.7 for women.

Total Effects

Analysis of total effects, adjusted for baseline age only in separate models, showed that all life events except for Death

of a Child had negative effects on SA (Table 2). Parental SEP had no significant effect on SA, and Adulthood SEP had a positive effect on SA, which was stronger for women (*b* = 0.29, *p* < .001) than for men (*b* = 0.16, *p* < 0.01).

Life-Course Model: Hypothesis 1

Model fit indices for the full model (Table 2 and Figure 2) indicated good fit to the data (RMSEA = 0.024, 90% CI = 0.015–0.032; CFI = 0.98; TLI = 0.96).

The first part of hypothesis 1 predicted negative direct effects of life events on SA. This hypothesis was supported, except for Death of a Child. The estimates of the effects of life events on SA indicate the absolute difference in SA-score between those with and without the event. For instance, respondents who reported Parental Problems in Childhood had on average .31 successful trajectories less than those who did not report this event (*p* < .001). Further negative effects on SA were found for Parental Death in Childhood (*b* = −0.13, *p* < .05), Divorce (*b* = −0.37, *p* < .001), Widowhood (*b* = −0.31, *p* < .001), Unemployment (*b* = −0.25, *p* < .001), and Occupational Disability (*b* = −0.33, *p* < .001).

The second part of hypothesis 1 expected higher parental and adulthood SEP to decrease the probability of experiencing stressful life events in childhood and adulthood, respectively, and as such to indirectly and positively affect SA. Contradicting these expectations, we found that respondents with higher Parental SEP were more likely to have experienced Parental Problems in Childhood (*b* = 0.13, *p* < .001; probit coefficient) and Parental Death in Childhood (only in men: *b* = 0.14, *p* < .01; Figure 2). The indirect effects of higher Parental SEP through these life events on SA were negative and statistically significant (see Table 3).

Table 3. Statistically Significant Indirect Effects for Men (*n* = 1,033) and Women (*n* = 1,152)

Pathway	Men		Women	
	b[a]	90% CI[b]	*b*[a]	90% CI[b]
Indirect paths from childhood events to SA				
Parental Death in Childhood via Adulthood SEP	−0.01	−0.03 to −0.00	−0.03	−0.06 to −0.01
Indirect paths from Parental SEP to SA				
Via Adulthood SEP	0.12	0.05 to 0.19	0.29	0.21 to 0.37
Via Parental Problems in Childhood	−0.04	−0.06 to −0.02	−0.04	−0.06 to −0.02
Via Parental Death in Childhood	−0.02	−0.04 to −0.00		ns
Three-part pathways from Parental SEP to SA				
Via Adulthood SEP and Divorce	−0.04	−0.07 to −0.02	−0.04	−0.07 to −0.02
Via Adulthood SEP and Unemployment		ns	−0.03	−0.06 to −0.01
Via Adulthood SEP and Occupational Disability	0.05	0.02 to 0.08		ns
Indirect paths from Adulthood SEP to SA				
Via Divorce	−0.07	−0.11 to −0.03	−0.07	−0.11 to −0.03
Via Unemployment		ns	−0.05	−0.09 to −0.01
Via Occupational Disability	0.08	0.04 to 0.13		ns

Notes: CI = confidence interval; ns = not significant; SA = Successful Aging; SEP = socioeconomic position.
[a]Probit coefficient, except for indirect effect of Parental SEP via Adulthood SEP on SA, which is expressed as a linear regression coefficient.
[b]Based on 1,000 bootstrap draws.

Also contradicting hypothesis 1, respondents with higher Adulthood SEP were more likely to have ever divorced ($b = 0.19$, $p < .001$) and more likely to have ever been unemployed (women only; $b = 0.21$, $p < .01$). The resulting indirect effects of Adulthood SEP on SA were statistically significant and negative (see Table 3). Supporting the latter part of hypothesis 1, older adults with higher Adulthood SEP were less likely to have ever been occupationally disabled (men only; $b = -0.25$, $p < .001$) or to have ever lost a child (men and women equally; $b = -0.11$, $p < .05$). The indirect effect from Adulthood SEP through Occupational Disability on SA was positive. There was no significant indirect effect of Adulthood SEP through Death of a Child on SA.

Life-Course Model: Hypothesis 2

The first part of hypothesis 2 expected a negative indirect effect of childhood events on SA, through their expected negative effects on Adulthood SEP. In support of this hypothesis, Parental Death in Childhood negatively affected Adulthood SEP ($b = -0.06$, $p < .05$), and the indirect effect of this event via Adulthood SEP on SA was statistically significant and negative. We found no support for the second part of hypothesis 2, stating a negative indirect effect of Parental Problems in Childhood on SA, through increasing the likelihood of Divorce. The effect of Parental Problems on Divorce was positive, but not statistically significant ($b = 0.13$, $p > .05$).

We also tested whether three-part indirect effects involving Parental SEP, Adulthood SEP, and life events were statistically significant. This was the case for three of such pathways. The pathway from Parental SEP via Adulthood SEP via Divorce on SA was negative ($b = -0.04$, CI = -0.07 to -0.02). Parental SEP also indirectly affected SA through Adulthood SEP and Unemployment ($b = -0.03$, CI = -0.06 to -0.01) and through Adulthood SEP and Occupational Disability ($b = 0.05$, CI = 0.02–0.08; Table 3).

Life-Course Model: Hypothesis 3

The first part of hypothesis 3 stated positive direct effects of Parental SEP and Adulthood SEP on SA. In the full model, we found no significant direct effect of Parental SEP on SA and a positive direct effect of Adulthood SEP on SA ($b = 0.49$, $p < .001$ for women; $b = 0.20$, $p < .01$ for men; Table 2 and Figure 2). These results support hypothesis 3 only for Adulthood SEP. The effect of Adulthood SEP on SA in the full model including life events was stronger than the effect without adjusting for life events. This suggests suppressor effects of life events on the association between Adulthood SEP and SA. Additional analyses showed that the relatively small inequalities in SA by adulthood SEP in the unadjusted model were due to a higher exposure to Divorce and Unemployment in older adults with higher adulthood SEP. Finally, the latter part of hypothesis 3 stating a positive indirect effect of Parental SEP on SA through Adulthood SEP was supported ($b = 0.12$, CI = 0.05–0.19 for men; $b = 0.29$, CI = 0.21–0.37 for women; Table 3).

Sensitivity Analyses

In sensitivity analyses on separate SA indicators, we found that all life events were associated with at least one indicator of SA and that each single indicator of SA was affected by at least one life event. For example, widowhood was associated with lower odds of having a successful trajectory in five out of nine indicators of SA (odds ratios among SA indicators varied between 0.71 and 0.74), and depressive symptoms and instrumental support given were affected by four out of seven included life events. Inequalities by Adulthood SEP were present in six out of nine indicators of SA, and largest in cognitive functioning and emotional support given. Detailed results can be found in the online Supplementary Material.

Discussion

This study was the first to examine the effects of stressful life events and SEP in childhood and adulthood on a longitudinal and multidimensional measurement of SA, while disentangling how these social and individual factors may shape one another. Contributing to the state-of-the-art literature on SA, social stress, and life events, our study yielded two principal findings.

First, we observed that six out of seven included life events had a negative effect on SA. Experiencing multiple of these events may substantially affect the extent to which one ages successfully. Striking was the observed negative effect of parental problems in childhood on SA, confirming that even early-life events may influence trajectories of functioning several decades later. Second, we found evidence that both early- and later-life socioeconomic conditions partly shape SA, albeit through complex and partly unexpected pathways. We found that both lower and higher SEP were associated with higher risks of experiencing particular life events. Those with lower adulthood SEP were more often confronted with occupational disability, but those with higher parental or adulthood SEP were more likely to have experienced family disruption in childhood, divorce, and unemployment. Relatively unprecedented in the literature on SA, our analyses of indirect effects demonstrated that although higher SEP remained a robust positive predictor of SA, it may also bring along particular disadvantages.

Taken together, our results demonstrate some of the limits to the extent that individuals are capable of determining their chances to age successfully. Disadvantaged socioeconomic conditions in childhood and stressful events such as parental divorce and widowhood are factors that are largely uncontrollable by an individual. This calls for more research on the relative importance of controllable versus uncontrollable factors for SA. Such studies may provide indications of which policies or interventions are most likely to succeed. Moreover, our findings indicate that some efforts to increase SA in the population should focus on how (older) adults can build resilience toward the sometimes inevitable stressful experiences and conditions in life (Smith & Hayslip, 2012).

Building on social stress theory, our study also contributes to Rowe and Kahn's (2015) recent call to investigate

how social institutions may shape opportunities or barriers to SA. We provide striking examples of how individual stress exposure can be shaped by cohort-specific institutional arrangements and norms (e.g., concerning gender roles) that are linked to SEP. First, in line with previous studies (e.g., Fu, 2006), we found a higher prevalence of divorce with higher SEP. This can be explained by the observation that decades ago, couples with more cultural and economic resources could better afford to break prevailing social norms against divorce than couples with less resources (Goode, 1962 in De Graaf & Kalmijn, 2006). However, due to changes in legal and normative barriers against divorce, the socioeconomic distribution of divorce has shifted to being more prevalent with lower SEP (De Graaf & Kalmijn, 2006).

Second, our finding that women with higher education were more often unemployed can also be linked to norms that have been changing during the previous decades. In the 1950s, higher educated women were much more likely than lower educated women to combine marriage, motherhood, and employment against the prevailing gender norms (Visser, 2002). Consequently, their longer participation in paid labor might have made them more likely to have ever been temporarily unemployed. Although particular social norms and institutional arrangements may thus have changed, our results urge researchers and policy makers to analyze how contemporary societal developments affect the patterning of SA by gender and SEP.

Finally, while playing a minor role in our analyses, the negative effect of the death of a parent in childhood on adulthood SEP (after adjustment for parental SEP) suggests that social selection hypotheses should be taken into account in life-course studies of SA.

Limitations

A number of limitations of the present study should be discussed. First, we could investigate only a limited selection of life events. We did not include life events such as childhood abuse, physical assault, or discrimination, which might also impact on SA and be influenced by SEP. Disregard of such events was either caused by unavailability of data or very low prevalence.

Second, retrospectively reported life events may suffer from recall bias. Specifically, the observed increased probability of particular life events with higher SEP might be partly due to better recall in respondents with higher SEP. However, most events included in our study are rather severe ones, which may have minimized problems with recall. Evidence from a previous study also shows no SEP differences in recall of childhood circumstances (Krieger, Okamoto, & Selby, 1998). Nevertheless, differential recall bias by SEP cannot be ruled out and may perhaps partly account for particular findings from our study for which the existing literature provides few explanations, for example, a higher exposure to parental death in men with higher parental SEP.

Third, the conceptual advantage of measuring SA longitudinally rather than cross-sectionally was attained at the cost of sample attrition. Respondents who were excluded from our sample were relatively old and had lower health and education. However, they did not differ significantly in occupational prestige (Kok et al., 2015). Additionally, selective attrition within the final sample was minimized through using the maximum likelihood procedure in estimating the trajectories of SA. Therefore, we do not expect severely biased conclusions.

As a final limitation, we emphasize that the extent to which our data allow causal inference is limited. Our conclusions regarding "social causation" and "social selection" thus are tentative.

Conclusion

Responding to the new directions for research on SA provided by Rowe and Kahn (2015), our study has advanced understanding of how social factors and individual experiences across the life course influence SA. We showed that individual opportunities to age successfully are partly shaped by stressful life events in childhood and adulthood and that such events may be partly triggered by socioeconomic conditions. Furthermore, we demonstrated that each socioeconomic context, the advantaged and the disadvantaged, may bring along a higher risk of particular stressors that influence SA. Our results also suggest that the social patterning of particular stressful life experiences may be driven by cohort-specific cultural and institutional arrangements that should be acknowledged in research, policy, and interventions focusing on inequalities in SA.

Supplementary Material

Please visit the article online at http://gerontologist.oxford-journals.org/ to view supplementary material.

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Conflict of Interest

None declared.

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