

How “Successful” Do Older Europeans Age? Findings From SHARE

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Objectives. We estimate comparable prevalence estimates of “successful aging” for 14 European countries and Israel, adding a new cross-nationally comparative perspective to recently published findings for the United States.

Methods. Measures for a variety of specific successful aging criteria were derived from baseline interviews of respondents aged 65+ who participated in the Survey of Health, Ageing, and Retirement in Europe ($n = 21,493$). A multivariate logistic model was run for our global successful aging measure.

Results. Our analysis revealed substantial cross-country variation around a mean value of 8.5%: Although as many as 21.1% of older Danes meet our successful aging criteria, the respective proportion in Poland is only 1.6%. Age, gender, and socioeconomic status are shown to bear highly significant associations with individuals’ odds of successful aging.

Discussion. The observed cross-national variation in successful aging—which continues to exist if population composition is controlled for—highlights the importance of taking into consideration structural factors at the societal level. It also suggests a potential for policy interventions supporting individuals’ opportunities for successful aging.

Key Words: Cross-national research—Population aging—SHARE—Successful aging.

AGAINST the background of a steady increase in life expectancy, the question of how people will age has become increasingly important. Issues of particular concern are future trends in older adults’ health (e.g., [Crimmins, 2004](#); [Parker & Thorslund, 2007](#)) and social integration (e.g., [Cornwell, Laumann, & Schumm, 2008](#); [Kohli, Hank, & Künemund, 2009](#)), where adverse developments might threaten individuals’ potential for “successful aging”. Although this term has become very popular in the gerontological literature, there is little consistency in definitions of the concept, and many studies do not even attempt to define it ([Bowling, 2007](#), p. 264). Probably the most influential conceptualization to date was introduced by [Rowe and Kahn \(1997, p. 439\)](#), who defined successful aging as “avoidance of disease and disability, maintenance of high physical and cognitive function, and sustained engagement in social and productive activities” (also see [Rowe & Kahn, 1998](#)).

Even if some authors are critical about this conceptualization of successful aging, one needs to acknowledge that it has become a “calculable gold standard of aging” ([Dillaway & Byrnes, 2009](#), p. 706) applied in many empirical studies today (see [Bowling, 2007](#), p. 272). Recently, [McLaughlin, Connell, Heeringa, Li, and Roberts \(2010\)](#), for example, applied Rowe and Kahn’s concept to data from the Health and Retirement Study (HRS), estimating the prevalence of successfully aging older Americans to be no greater than 12%. Moreover, the authors found indication for a substantial decline in the odds of successful aging over time and for disparities across social groups, suggesting an important role of structural factors in enabling successful aging.

The Survey of Health, Ageing, and Retirement in Europe (SHARE) allows us to calculate comparable prevalence estimates of successful aging for 14 European countries and Israel, thereby complementing previous research in several ways. First, [McLaughlin and colleagues \(2010, p. 225\)](#) concluded that because only “[f]ew older adults meet Rowe and Kahn’s definition of successful aging [. . .] modification of [their] concept is necessary if it is to be used as a benchmark by which to assess the health and functioning of our older population.” To further substantiate such a conclusion, it should be helpful to compare proportions of successfully aging individuals across nations: What extent of cross-country variation will we observe using the same definition of successful aging? Europe, which is similarly challenged by population aging as the United States, appears as an ideal setting for such kind of analysis. Second, previous studies highlighted the importance of microlevel structural factors, such as age, education, and income. By taking a cross-nationally comparative perspective, we add another—macrolevel—dimension of potentially relevant structural (e.g., welfare state) factors affecting individuals’ opportunities for successful aging to the analysis. Finally, previous research using SHARE tended to address singular aspects of successful aging, focusing on its social activity dimension (e.g., productive aging) or its biomedical dimension (i.e., healthy aging), suggesting considerable heterogeneity between European countries (e.g., [Hank, in press](#); [Santos-Eggimann, Cuénoud, Spagnoli, & Junod, 2009](#); [Sirven & Debrand, 2008](#)). Following Rowe and Kahn, our study attempts to draw a more complete and multidimensional picture of successful aging in

Europe by accounting for its biomedical and social activity dimensions.

METHODS

Data

We use baseline interviews from the first two rounds of the SHARE (see Börsch-Supan, Hank, & Jürges, 2005; Börsch-Supan, Hank, Jürges, & Schröder, 2010), which was modeled closely after the Health and Retirement Study. SHARE is representative of the noninstitutionalized population aged 50 years or older in all 15 participating countries: Eleven countries—Austria, Belgium, Denmark, France, Greece, Germany, Italy, The Netherlands, Spain, Sweden, and Switzerland—contributed data to SHARE’s first wave in 2004–2005. Further data were collected in Israel during the years 2005–2006. Three more countries—the Czech Republic, Ireland, and Poland—joined SHARE for its second wave in 2006–2007, which also included refresher samples in those countries that already participated in Wave 1.

The weighted average household response rate at baseline was 62%, ranging from 39% in Belgium and Switzerland to 81% in France. Sensitivity analyses for a set of core variables did not provide any indication for a significant bias in distributions or item response behavior resulting from below-average survey participation in countries, such as Switzerland. To account for unit nonresponse, calibrated design weights are applied in our descriptive analysis (see Börsch-Supan & Jürges, 2005, for methodological details). Our analytic sample ($n = 21,493$) pools baseline interviews of respondents aged 65 years or older from both waves, excluding older adults who required proxy respondents (less than 3% of the sample); see Table 1 for descriptive statistics.

Dependent Variable

Following Rowe and Kahn’s conceptualization—and in order to obtain results comparable with those presented in McLaughlin and colleagues (2010)—we defined successful aging “as having (a) no major disease, (b) no activity of daily living (ADL) disability, (c) no more than one difficulty with seven measures of physical functioning, (d) obtaining a median or higher score on tests of cognitive functioning, and (e) being actively engaged.” (McLaughlin et al., 2010, p. 217) Accordingly, our dependent variable equals 1 if all the above conditions were fulfilled and 0 otherwise. The single items on which this global measure of successful aging is based were operationalized as follows:

- (a) Respondents were considered to have no major disease if they neither reported that a doctor had ever told them they had any of the following chronic diseases: cancer, chronic lung disease, diabetes, heart disease, or stroke nor obtained a score of 4 or more on the

Table 1. Pooled Sample Characteristics (unweighted)

Characteristics	
Demographics	
Age (years)	73.2 (6.7)
Female (%)	54.2
Socioeconomic status (%)	
Low educational degree	56.2
Medium educational degree	23.7
High educational degree	12.0
Making ends meet (fairly) easily	40.0
Homeowner	46.3
Survey year (%)	
Baseline interview in 2004	46.7
Baseline interview in 2005	13.1
Baseline interview in 2006	10.2
Baseline interview in 2007	30.0
Country (n [all] = 21,493, %)	
Austria ($n = 1,098$)	5.0
Germany ($n = 1,948$)	9.0
Sweden ($n = 1,897$)	8.8
The Netherlands ($n = 1,585$)	7.4
Spain ($n = 1,697$)	8.1
Italy ($n = 1,916$)	8.9
France ($n = 1,812$)	8.5
Denmark ($n = 1,308$)	6.0
Greece ($n = 1,663$)	7.8
Switzerland ($n = 800$)	3.7
Belgium ($n = 1,946$)	9.0
Israel ($n = 1,140$)	5.3
Czech Republic ($n = 1,163$)	5.4
Poland ($n = 1,046$)	4.9
Ireland ($n = 474$)	2.2

Note: Pooled baseline interviews from SHARE Waves 1 and 2 (Release 2.3.0), 2004–2007.

EURO-D depression scale (see Castro-Costa et al., 2008).

- (b) Respondents were classified as having no disability if they did not report difficulties performing any of the following ADLs: walking across a room, dressing, bathing or showering, eating, getting in or out of bed, and using the toilet.
- (c) Participants were considered to have high cognitive functioning if they achieved a median or higher score on a cognitive functioning index based on the following items (see Dewey & Prince, 2005): naming correctly the day of the week, day, month, and year (1 point for each correct answer: maximum: 4); an immediate and a delayed 10-word recall test (1 point for each correctly recalled noun: maximum: 20); and a mathematical performance test (1 point for each correct answer: maximum: 5). For missing cognitive items, we computed scores of 0. Participants could obtain a maximum score of 29 (cf. Herzog & Wallace, 1997).
- (d) Participants were classified as having high physical functioning if they reported difficulties with at most one of the six following activities: climbing one flight of stairs; climbing several flights of stairs; lifting or carrying items weighing more than 10 lbs.; stooping, kneeling, or crouching; pulling or pushing large objects; and walking 100 m.

Table 2. Percentages Meeting Specific “Successful Aging” Criteria By Country

	AT	DE	SE	NL	ES	IT	FR	DK	GR	CH	BE	IL	CZ	PL	IE ^a	All	US ^b
No major disease	59.0	47.5	45.2	49.8	40.3	39.0	39.3	51.0	48.1	59.6	46.4	31.5	41.2	25.5	55.0	42.6	37.0
No disability	88.0	84.2	86.8	88.8	85.3	83.8	83.5	85.9	88.7	90.8	81.7	83.0	88.2	67.0	83.5	83.7	82.1
High cognitive functioning ^c	68.4	67.5	64.8	63.4	20.9	36.3	45.3	67.2	53.2	70.9	52.5	44.2	60.2	30.5	60.8	48.5	57.8
High physical functioning ^d	64.6	61.4	68.5	69.4	51.4	54.2	60.6	69.4	49.5	79.0	62.6	42.3	59.0	31.1	64.7	57.3	49.0
Actively engaged ^e	22.3	27.4	39.7	40.7	22.8	24.2	29.5	42.6	27.0	31.4	37.5	35.1	18.0	17.1	40.6	27.1	49.7
Successful aging - (global)	10.2	11.6	17.4	17.0	3.1	5.3	8.4	21.1	7.7	16.1	11.8	10.2	6.4	1.6	15.7	8.5	10.9

Notes: Pooled baseline interviews from SHARE Waves 1 and 2 (Release 2.3.0), 2004–2007; cross-sectional weights applied. AT = Austria; DE = Germany; SE = Sweden; ES = Spain; IT = Italy; FR = France; DK = Denmark; GR = Greece; CH = Switzerland; BE = Belgium; IL = Israel; CZ = Czech Republic; PL = Poland; IE = Ireland.

^aNo weights available yet.

^bCalculations by McLaughlin and colleagues (2010) (Table 2) based on the 2004 Health and Retirement Study.

^cThis is somewhat different from McLaughlin and colleagues’s measure whose maximum is 33.

^dThe sum of activities used here is one less than in McLaughlin and colleagues’s study, who treated “walking one block” and “walking several blocks” as two separate activities, whereas SHARE provides information about difficulties “walking 100 meters” only.

^eThis is slightly less inclusive than McLaughlin and colleagues’s operationalization, which is based on volunteering in the previous year, grandparenting (at least 100 hours) during a 2-year period, and having or regularly getting together with friends or neighbors, irrespective of whether help is provided.

(e) Respondents were defined as being actively engaged if they reported, first, having done “any paid work” or “voluntary or charity work” in the month preceding the interview or having provided any grandchild care during the past twelve months and, second, living with a partner; having “provided help to family, friends, or neighbors;” or having “gone to a sport, social, or other kind of club” in the month preceding the interview.

Note that all items were translated into national languages from the same English-language “generic” SHARE questionnaire, whose translation was carefully checked in order to ensure cross-national comparability (Börsch-Supan et al., 2010, p. 509).

Independent Variables

We control for two demographic variables, namely sex and age. Moreover, we employ three measures of the individual’s socioeconomic status (SES): First, the highest educational degree ever achieved (“low” = lower secondary level of education or less, “medium” = upper secondary or postsecondary nontertiary level of education, and “high” = first stage of tertiary education or higher); second, a binary indicator of perceived income adequacy, which equals 1, if the respondent reports that it is (fairly) easy to make ends meet (this has been shown to be a robust indicator of financial capacity in older age; see Litwin & Sapir, 2009); and, third, a dummy variable for homeownership serving as a wealth indicator. Finally, we control for the individual’s country of residence and for the year in which the baseline interview was conducted.

Methods

In addition to simple cross-tabulation of the outcome measures by country, we estimated a logistic model (using STATA 11.1), controlling for the sociodemographic variables

described earlier as well as for country and year of the survey. The results of the multivariate model are presented as odds ratios (ORs). We applied effect coding to highlight each country’s deviation from the grand mean of all countries in the sample (e.g., Wendorf, 2004). Effect coding uses contrast weights that result in tests of deviations of group means from the intercept coefficient, which inherits the value of the grand mean. That is, different from dummy coding, where coefficients indicate deviations from the omitted reference group, the coefficients of the k country indicators in our model specify each country’s deviation from the grand mean of all observations. In effect coding, the reference group receives a value of -1 on all between-group vectors; the regression coefficient of this group is eventually calculated as the sum of all $k-1$ regression coefficients with their signs reversed.

RESULTS

Bivariate Analysis

The results of our bivariate descriptive analysis (see Table 2) show a wide variation in the proportions of older people meeting specific successful aging criteria across countries. The percentage of elders reporting “no major disease” (mean: 42.6%) is about twice as high in Austria and Switzerland (~60%) than in Israel and Poland (~30%). Although this range is smaller for the “no disability” criterion (90.8% in Switzerland vs. 67.0% in Poland, with a mean of 83.7%), it is even wider if “high cognitive functioning” (mean: 48.5%) is considered, where Spain (20.9%) marks the low end of the distribution, whereas Austria and Switzerland (~70%)—again—score best. Switzerland (79.0%) also has the highest proportion of older people with “high physical functioning,” followed by The Netherlands (69.4%), whereas Israel (42.3%) and Poland (31.1%) clearly lie below the mean of 57.3%. Turning, finally, to “active engagement” (mean: 27.1%), we once

more observe cross-country differences by a factor of more than two, with the highest shares in Denmark and The Netherlands (slightly more than 40%) and the lowest ones in Poland and the Czech Republic (somewhat >20%).

Accordingly, our global measure of successful aging ranges from 21.1% in Denmark (closely followed by Sweden and The Netherlands: ~17%) to 3.1% in Spain and 1.6% in Poland. On average, the prevalence of successful aging among older Europeans is 8.5%—which is even lower than the 10.9% reported by McLaughlin and colleagues (2010) (Table 2) for the United States in 2004. However, comparing the American results with each of the 15 countries considered here (see Table 2) shows that they almost always lie within the range of values observed in Europe. Even if some of the cross-country differences might be confounded by differential population composition, it seems worth noting that the United States (together with Poland and Israel) appears at the lower end of the distribution if the proportions of elders with no major disease or high physical functioning are considered. This looks very different, though, if we turn to active engagement. Even those European countries with the highest proportions of “active” older people—Denmark and The Netherlands—exhibit lower prevalence rates than the ones estimated by McLaughlin and colleagues (whose operationalization of active engagement is somewhat less restrictive than ours, though).

Because Rowe and Kahn’s concept of successful aging has both a biomedical and a social activity dimension, it seems interesting to look at the correlation between the two across countries (see Supplementary Figure 1). We barely find any correlation between the proportion of socially active (productive, respectively) elders and the proportions of older people without major diseases ($R^2 = .05$) or disabilities ($R^2 = .04$). Aggregate levels of cognitive and physical functioning, however, bear stronger associations with the extent to which a country’s older population is actively engaged ($R^2 = .18$ and $.12$, respectively). Obviously, significant proportions of healthy people are not actively engaged, which is particularly apparent in Switzerland, which ranks first on all biomedical indicators considered here but takes a median position only if active engagement is considered. Thus, although “healthy” and “active” aging are not fully independent of each other, they should clearly be treated as distinct components of successful aging (see the concluding section for a further discussion of this issue).

Multivariate Analysis

To account for the role of demographic and socioeconomic characteristics in individuals’ opportunities for successful aging as well as for potential effects of differences in population composition in determining the cross-country pattern described earlier, we estimated a multivariate logistic model for our global successful aging measure (see Table 3).

Table 3. Results of Multivariate Logistic Regression for Global “Successful Aging” Measure (n = 21,493)

Characteristics	ORs (95% CIs)
Demographics	
Age	0.86** (0.848–0.865)
Female	0.75** (0.682–0.816)
Socioeconomic status (ref.: low education)	
Medium level of education	1.56** (1.396–1.741)
High level of education	2.35** (2.078–2.661)
Making ends meet (fairly) easily	1.27** (1.144–1.414)
Homeowner	1.09 (0.979–1.206)
Survey year (ref.: baseline in 2004)	
Baseline interview in 2005	1.22 (0.976–1.522)
Baseline interview in 2006	1.49** (1.236–1.809)
Baseline interview in 2007	1.43** (1.275–1.594)
Country (effect coding)	
Austria	0.90 (0.740–1.104)
Germany	1.16* (1.007–1.341)
Sweden	2.68** (2.355–3.059)
The Netherlands	2.47** (2.139–2.844)
Spain	0.42** (0.329–0.548)
Italy	0.70** (0.583–0.840)
France	0.96 (0.805–1.151)
Denmark	2.60** (2.242–3.015)
Greece	0.82* (0.677–0.987)
Switzerland	2.13** (1.757–2.585)
Belgium	1.18 (0.96–1.46)
Israel	0.76* (0.600–0.962)
Czech Republic	0.59** (0.472–0.748)
Poland	0.15** (0.098–0.238)
Ireland	1.36* (1.050–1.765)
Pseudo- R^2	0.165

Note: Pooled baseline interviews from SHARE Waves 1 and 2 (Release 2.3.0), 2004–2007. Significance: ** $p < .01$; * $p < .05$. CI = confidence interval; OR = odds ratio.

To begin with, its results highlight the importance of structural factors, such as age, gender, education, and economic capacity. The odds of aging successfully decreases significantly as individuals age and is lower for women than for men, whereas those who obtained higher levels of education or make ends meet easily are more likely than their counterparts in the respective reference group to meet our successful aging criteria. Moreover, we observe a positive association between a later baseline interview (in 2006 or 2007) and successful aging, but—different from the study by McLaughlin and colleagues—our period of observation clearly is too short to derive any substantive conclusion from this finding. Even after having controlled for these microlevel characteristics, considerable differences between the countries represented in our study remain. Although Austria, Belgium, and France do not deviate in statistically significant ways from the grand mean, elders in the Mediterranean countries as well as in the formerly socialist countries Poland and the Czech Republic exhibit significantly below-average odds of aging successfully (ORs ranging from 0.15 to 0.82). The reverse is true for the Scandinavian countries as well as for Germany, Ireland, The Netherlands, and Switzerland (ORs ranging from 1.16 to 2.68).

DISCUSSION

Exploiting data from the SHARE, we calculated comparable prevalence estimates of successful aging among Europeans aged 65 years or older from 14 European countries and Israel. Our analysis revealed substantial cross-national variation around a mean value of 8.5%. Although one in five older Danes meets our successful aging criteria, the respective proportion in Poland is less 1 in 50. Relating these findings to results of a recent study by [McLaughlin and colleagues \(2010\)](#) based on data from the Health and Retirement Study suggests that the proportion of successfully aging Americans (10.9% in 2004) falls pretty well into the broad range observed in Europe

The observed cross-country differences in Europe continue to be statistically significant even after controlling for population composition, suggesting that, next to structural factors at the individual level (such as demographics and SES), structural factors at the societal level are closely related to successful aging opportunities. Thus, although we tend to agree with [McLaughlin and colleagues \(p. 224\)](#) that Rowe and Kahn's concept of successful aging might be too narrow for specific public health purposes, we still believe that our study's findings do have policy implications for aging societies.

Twice as many Danes than Austrians manage to age successfully, and holding other factors constant, the odds of aging well in the Czech Republic or Spain, for example, are only about half the European average. Relating these findings to measures of income inequality in the countries considered here (e.g., the Gini coefficient; see Supplementary Figure 2) provides some support to the notion that in more egalitarian societies, greater proportions of elders succeed in aging well (see [Wilkinson & Pickett, 2006](#), for a related discussion). Along the same lines, but more specifically, the regional variations observed in our study also correspond quite well with variations in welfare state policies affecting, for example, elders' health care and preventive services utilization (e.g., [Santos-Eggimann, Junod, & Cornaz, 2005](#)) or participation in socially productive activities (e.g., [Hank, in press](#))—and thus their capacity to age successfully. If policies have the power to improve this capacity, though, low or even declining levels of successful aging need not—and must not—be accepted by policy makers and practitioners. Even if Denmark had already achieved the maximum level of successful aging possible in an advanced society at the beginning of the 21st century, this would still mean that there is considerable, yet unused potential for improvements elsewhere: Germany, Belgium, and many other countries (including the United States) might double their proportion of successfully aging older people if they would follow the Danish “best practice.” Understanding better, which particular welfare state policies are most important in this regard and how they can be translated into concrete measures enabling successful aging is an important task for future research.

Limitations

This study has several limitations. First, one's choice of a specific successful aging measure obviously affects both prevalence estimates and observed relationships. Despite a focus on the biomedical dimension of successful aging, Rowe and Kahn's concept, which we employed here, also accounts for active engagement, that is, having and maintaining interpersonal relationships and productive activities. If, for instance, we had restricted our analysis of successful aging to health indicators alone (i.e., having no major disease or disability and high cognitive and physical functioning), the proportion of successfully aging older Europeans would have increased by a factor of almost 2.5 to an average of 20.5% (ranging from 6.8% in Poland to 38.9% in Switzerland)—and might have changed yet again if a different or expanded set of chronic conditions, for example, had been used. The potential advantage of choosing such a measurement of successful (i.e., healthy) aging is its relative unambiguousness: Disease is unlikely to be perceived as desirable by anybody, whereas an emphasis on active engagement as an indicator of success discriminates against elders who are unable or unwilling to engage in productive activities, for example, but who might find meaning in old age in other ways (e.g., [Holstein & Minkler, 2003](#)). An exclusively biomedical conceptualization of successful aging, however, clearly misses the undisputable fact “that successful aging includes a broad set of circumstances that include, but transcend, health” ([Bowling, 2007](#), p. 272; also see [Dillaway & Byrnes, 2009](#)) and is therefore not a preferable alternative to Rowe and Kahn's conception.

Even the latter has been criticized for being too narrowly defined, and research exploring self-ratings and lay views of successful aging, for example, regularly documents greater diversity and more domains than those accounted for in academic conceptualizations (e.g., [Hung, Kempen, & De Vries, 2010](#); [Strawbridge, Wallhagen, & Cohen, 2002](#)). Studies also suggest that specific domains of successful aging may be valued differently by older people across cultures (e.g., [Fernández-Ballesteros et al., 2008](#); [Hung et al., 2010](#)). This is a second limitation of the present study because we assume that Rowe and Kahn's concept measures successful aging in a comparable way across a variety of social and cultural contexts—which might not always be fully accomplished. Particularly in case of the active engagement criterion, the items that are most relevant to constitute an individual's classification as being “successful” might be contextually bound (think, e.g., of the differential role of kin and nonkin social networks in Scandinavia and the Mediterranean and their association with well-being outcomes; see [Litwin, 2010](#)). Moreover, self-reported health measures might suggest cross-national differences in healthy aging simply due to reporting or diagnostic differences across countries. It is therefore highly desirable that surveys such as SHARE or the HRS will collect even more biomarker information from their respondents in future waves

(cf. Hank, Jürges, & Schaan, 2009). These issues, however, should not corrupt our overall conclusion of a substantial North–South gradient of successful aging in Europe.

A third limitation (which also bears in it the potential for future research, though) refers to our measures of micro level characteristics, such as SES. Consistent with other U.S. and European researches providing evidence for SES differentials in elders' health (e.g., Jürges, 2010), social participation (e.g., Hank & Stuck, 2008), or—more generally—successful aging (e.g., McLaughlin et al., 2010), we find a strong positive correlation of individuals' level of education and perceived income adequacy with the odds of aging successfully. Evidently, these simple indicators of individuals' SES do not fully capture the complex economic situation of European elders and cross-national variations therein (see Christelis, Japelli, Paccagnella, & Weber, 2009, for a detailed discussion). More importantly, though, these characteristics mainly reflect the respondents' current SES. Clearly, it would be desirable to account more properly for early-life and midlife SES as well as other earlier life risk factors potentially threatening the individual's potential for successful aging (e.g., Britton, Shipley, Singh-Mannoux, & Marmot, 2008; Pruchno, Wilson-Genderson, Rose, & Cartwright, in press). Fortunately, SHARE's third wave—conducted in 2008–2009—was designed as a retrospective life-history survey (see Börsch-Supan et al., 2010). Once these data will have become available for analysis, researchers will be able to close further gaps in our knowledge, studying the determinants of successful aging from a cross-national and life-course perspective.

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SUPPLEMENTARY MATERIAL

Supplementary material can be found at: <http://psychsocgerontology.oxfordjournals.org/>

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