

Between-Person Disparities in the Progression of Late-Life Well-Being

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Abstract

Throughout adulthood and old age, levels of well-being appear to remain relatively stable. In this chapter, we argue that focusing on a phase of life during which this positive picture does not necessarily prevail promises to help us better understand between-person disparities in the progression of late-life well-being. In a first step, we review empirical evidence from the German Socio-Economic Panel and other large-scale longitudinal data sets to demonstrate that ubiquitous reports of a “stability-despite-loss phenomenon” of well-being do not generalize into years of life immediately preceding death. Instead, mean-level representations of the end of life are characterized by a rapid deterioration in well-being. In a second step, we highlight the vast heterogeneity in how people experience the last years and consider the role of biopsychosocial individual difference factors to account for such disparities. The select factors reviewed here include socio-demographic characteristics, cognitive fitness, pathology, and disability. In a third step, we argue that macro-contextual factors such as the social, service, and physical characteristics of the communities and societies people are living and dying in also profoundly shape the nature and progression of individual late-life well-being. Our conceptual reasoning forecasts some of the insights that can be gained by pursuing this line of research, but also underscores the challenges researchers must deal with.

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“Most of the people are mildly happy most of the time” (Biswas-Diener, 2009).

Even after major negative life events, most people often quickly adapt and return to their characteristic levels (Brickman & Campbell, 1971), and such ‘set-points’ are typically positive rather than neutral or negative (see Diener, Lucas, & Scollon, 2006). In this chapter, we review recent and ongoing endeavors that highlight the utility of focusing on a phase of life during which this positive picture of well-being does not necessarily prevail. Drawing from notions of terminal decline, we argue that the changes in well-being that occur late in life provide a venue for the examination of between-person disparities and the factors that contribute to them. In a first step, we review empirical evidence to suggest that such steep end-of-life declines in well-being and psychological health may indeed be a normative experience, but these declines are more a function of closeness to death than age itself. At the same time, not all individuals experience their last years alike, and while end-of-life decline may be normative, it should not be considered inevitable. There is tremendous variability in late-life patterns of change over time. Many people’s well-being drops sharply into death, whereas others maintain their well-being into their last years. In a second step, we characterize how such between-person disparities in late-life well-being progress, and we highlight some of the key factors that contribute to such inequalities. These factors encompass key predictors of both mortality and well-being, including age (at death), gender, education, and disability. In a third step, we argue that such factors may not only reside at the individual level, but may also be found at the community or society level. In doing so, we review some of the possible mechanisms linking such macro-contextual factors to individual outcomes and inequalities in well-being change late in life. Throughout, we discuss how this line of research informs and contributes to further precision and refinement of widespread theories of well-being as well as conceptual notions implicating mortality as a major force underlying developmental change in the last years of life.

THE PROGRESSION OF LATE-LIFE WELL-BEING: NORMATIVE TRENDS AND BETWEEN-PERSON DISPARITIES

We first summarize several theories of well-being and the myriad of empirical reports to demonstrate that well-being is relatively stable across adulthood and old age. We then review an emerging body of findings suggesting that well-being shows terminal decline at the end of life and discuss implications that arise from these findings for theories of well-being and aging. We finally highlight that the progression of late-life well-being encompasses both alarmingly steep normative proximate-to-death deteriorations and large between-person inequalities therein.

Well-Being is Stable Across Adulthood and Old Age

Many developmental theories of well-being and self-regulation suggest that well-being remains relatively stable across adulthood and old age. For example, hedonic treadmill models of well-being highlight the role of adaptation processes through which people quickly adapt to changes in life circumstances (Brickman & Campbell, 1971). As a consequence, positive and negative events only have short-term effects, with people returning back to their characteristic initial levels quickly thereafter. Thus, normatively, well-being remains stable over the long-term. Socioemotional selectivity theory (Carstensen, 2006) also provides a framework for normative stability. Here, motivational shifts towards emotional and social goals occurring in conjunction with changes in future time perspective (e.g., how much longer one expects to live) lead to prioritizing the maintenance of well-being. A common theme underlying these and other action-theoretical accounts of development (e.g., Brandstädter, 1999; Heckhausen & Schulz, 1995; Baltes & Baltes, 1990) is that an objective worsening

of life conditions in old age (e.g. increased health constraints or social losses) does, on average, not affect well-being. Well-being is maintained and remains stable.

These conceptual arguments map onto the results of numerous cross-sectional and longitudinal studies finding that various facets of well-being remain relatively stable across the adult life (Argyle, 1999; Carstensen et al., 2000; Costa et al., 1987; Diener et al., 2006; Diener, Suh, Lucas, & Smith, 1999; Griffin et al., 2006; Haynie et al., 2001; Kunzman et al., 2000; Mroczek & Kolarz, 1998). After reviewing cross-sectional findings from large-scale probabilistic samples across several nations, Diener and Suh (1998) concluded that “*life satisfaction appears to be relatively stable across age cohorts in most societies*” (p. 310). Similarly, longitudinal studies evidenced that the emotional well-being facet of positive affect shows stability until age 65 and declines slightly thereafter, and the emotional well-being facet of negative affect remains virtually unchanged into old age (Charles, Reynolds, & Gatz, 2001; Kunzmann, 2008). In sum, although interpreted from different perspectives and implicating different underlying mechanisms, there is general consensus that age-related patterns of well-being over time are characterized by stability. As noted by Biswas-Diener (2009), “*Most of the people are mildly happy most of the time.*”

A “Stress-Test” Paradigm for Examining Inequalities: Well-Being Declines with Impending Death

Methodologically, pervasive and normative stability does not provide a particularly robust venue for the examination of inequalities. Rather, to achieve a better understanding of the mechanisms leading to differences, we need variance. We need a venue where inequalities are expressed and can be readily observed. For example, in the diagnosis of heart disease, individuals are typically subjected to an exercise “stress-test” wherein their cardiovascular reactivity and regulation is observed as their bodies are pushed towards their physiological limits (e.g., walking or running on a treadmill). Such paradigms

have also been used in the examination of differences in cognitive plasticity. For example, in their “testing-the-limits” paradigm, Kliegl, Smith, and Baltes (1990) pushed individuals to the limits of their mental (learning) capacity in order to better measure and understand the mechanisms contributing to differences or “inequalities” in cognitive function. The general idea of these experimental paradigms is to produce a situation where interindividual differences stand out in “relief” and can be more easily observed. Differences in cardiovascular function are not so apparent when individuals are resting or going about their daily lives. However, under “stress” conditions, differences in functionality become readily apparent, can be diagnosed and subsequently treated. Following this logic, we propose that “stress-test” paradigms may also be useful in the study of inequalities in well-being. In contrast to the stability and general happiness usually observed, a natural experiment wherein individuals’ adaptive capacities are being pushed to their limits should provide for new opportunities to observe previously often overlooked differences in well-being, diagnose the inequalities, and identify possible mechanisms/treatments.

Studies of late-life well-being and terminal decline suggest that impending death may provide a natural “testing-the-limits” paradigm for studying inequalities in well-being. Conceptually, developmental changes during adulthood and old age result from primary or normal forms of aging, secondary or pathological aspects of aging, and tertiary or mortality-related processes of aging (Birren & Cunningham, 1985; Busse, 1969). Acknowledging that developmental change at the end of life reflects a combination of these three mechanisms, notions of terminal decline (Kleemeier, 1962) suggests that, as people approach death, mortality-related processes may rise to the forefront and become the primary force underlying late-life changes. The accumulation of mortality-related burdens and systemic dysfunction (e.g., in physical and/or cognitive health) should “stress” the system and “test-the-limits” of individuals’ adaptive and regulatory ability and make it increasingly difficult to maintain a sense of well-being. In essence, approaching death serves as an absorbing state that drags individual

Table 1

Inherent in the conceptual notion of terminal decline is that two phases of late-life change can be distinguished: A pre-terminal age-dominated phase of relative stability or minor decline, followed by transitioning into a terminal mortality-dominated phase of precipitous decline (Kleemeier, 1962; Riegel & Riegel, 1972; Siegler, 1975; for overviews, see Bäckman & MacDonald, 2006; Berg, 1996). Despite these conceptual notions having been around for decades, they lack specificity regarding when the onset of terminal decline can prototypically be expected to occur. For example, Birren and Cunningham (1985) proposed that a “*cognitive and social slipping*” may occur some “*months to years*” prior to death (Birren & Cunningham, 1985, p. 21). Following pioneering work in the cognitive aging literature (Sliwinski et al., 2006; Wilson et al., 2003, 2007), we have applied recent developments in multi-phase growth modeling to estimate empirically the prototypical location of this transition. Results from various data sets converged on a time window between three and five years prior to death after which normative rates of well-being decline steepened by a factor of three or more (for overview, see the right-hand column of Table 1). Again, effect sizes for this decline are gloomy: The prototypical individual’s life satisfaction (e.g., among decedents in the national German data) declines nearly a full standard deviation over the last four years of life.

Conceptual Implications

Several implications arise from these findings for theories of well-being and aging in general. First, contrasting what would be expected by theories of hedonic adaptation (e.g., Brickman & Campbell, 1971), it appears that with approaching death it is increasingly difficult to maintain well-being. Our findings can be interpreted to indicate that mortality-related mechanisms or other progressive processes leading towards death (e.g., deteriorating health) overwhelm the regulatory or motivational mechanisms that usually keep well-being stable, and mortality-related processes become the prime

drivers of late-life decline in well-being. One of the key questions in this regard is whether or not well-being is inherently involved in these mortality processes. One line of reasoning has argued that, for example, well-being ratings primarily reflect summary perceptions of what is going on in other domains of functioning that are more directly linked to mortality (Maier & Smith, 1999). Other lines of reasoning have highlighted that well-being itself may (directly or indirectly) be part of the mortality dynamics, either because of its motivational and behavioral consequences (Levy, Slade, Kunkel, & Kasl, 2002) or because of its physiological effects on cardiovascular and immune functioning (Danner, Snowdon, & Friesen, 2001; Pressman & Cohen, 2005).

Second, the ostensibly normative pattern also provides a rather disconcerting image of late-life psychological health that qualifies notions of successful aging (Rowe & Kahn, 1997; see Baltes, 2006).

It is plausible that with limitations in perceived lifetime people indeed get better and better in optimizing their emotion regulation (Carstensen, 2006), but the pervasive nature of impending death may bring a sharp end to the possibilities afforded by such age-related increases in self-regulation.

Third, there exists a “soon to die” segment in the population of highly developed nations for whom a central indicator of quality of life is rapidly deteriorating or who simply report being fairly unsatisfied. For example, individuals in the nationally representative sample from Germany who died older than age 85 reported average levels of well-being that were below the neutral point (see Gerstorf, Ram et al., 2008a).

Fourth and finally, empirically localizing the normative onset of transitioning to the terminal phase of life informs future theoretical specifications of when end-of-life decrements can typically be expected to begin and how they may proceed (Birren & Cunningham, 1985). This illustrates that the gained precision in description (through applying methodological advances) requires and calls for new precision in theory. One central question to be addressed in future inquiries relates, of course, to why it

is that the normative onset is located in a three-to-five year window prior to death rather than, let's say, two years prior to death or even in the last year of life.

Between-Person Disparities in Late-Life Well-Being

Although the normative picture of late-life change painted above is one of seemingly inevitable decline in well-being, there are substantial interindividual differences in when and how individuals experience their last years of life. Individuals vastly differ from one another in how much well-being they report as well as in the amount of decline well-being shows with impending death. These are exactly the differences and inequalities we are after here.

When. The above reports noted that the prototypical transition into the terminal-decline phase occurs between three and five years prior to death. However, this represents an “average” estimate at the population level based on the very strict assumption that the location of the transition point does not vary across individuals. In other words, all persons are assumed to transition into terminal decline at exactly the same point in time. While likely unrealistic, such an assumption is often required by the limited nature of within-person change data available (e.g., five or six measurement occasions: Gerstorf, Ram et al., 2008b; Sliwinski et al., 2006; Wilson et al., 2003, 2007).

Using data from 400 individuals who provided 12 or more data points over 25 years, we were able to relax this assumption and allow for interindividual differences in the timing of the transition to terminal decline (Gerstorf, Ram et al., 2008a). As expected, there were considerable between-person differences in where the estimated transition point was located. While individuals, on average, transitioned to the terminal phase at roughly four years before death, some individuals entered earlier (e.g., six or eight years prior to death), while others entered later (e.g., two years prior), and still others did not show any evidence of entering the terminal phase. Overall, individuals enter the terminal-decline phase at times ranging from 13 years before death to just before death to not at all. These latter

individuals have likely not experienced the transition because they have died earlier than expected, presumably of some “random cause” (e.g., accident; sudden stroke), before they entered terminal decline.

How. Just as individuals differ in the timing of the transition into terminal decline, they also differ in the extent of those declines. All studies have noted significant variability in rates of mortality-related change. For example, among the 400 SOEP participants, the average rate of terminal decline was 3.51 T-score units per year, but some individuals declined substantially more (e.g., 6 T-score units per year), while others declined hardly at all (e.g., 0.5 T-score units per year). Modeling the transition with individual specificity was not possible in other samples, but similar differences in rates of change were noted across studies.

In sum, the extent of interindividual differences in well-being stand out dramatically when the focus is on examining changes in well-being at the end of life. Our modeling efforts and findings suggest that while some segments of society experience great decrements in psychological health as they approach death, other groups of individuals maintain key aspects of quality of life into the very last years.

Noting these differences prompts a quest to identify the reasons why such inequalities in late-life well-being arise. Insights into why some persons experience fewer years of decline, or less steep rates of decline prior to death may point to particular pathways for intervention (Baltes & Baltes, 1990; Berkman et al., 1993; Rowe & Kahn, 1997). In the following section, we review theoretical arguments and empirical results regarding key candidate factors that may contribute to such disparities.

mortality-related processes are exacerbated in very old age. For example, Baltes and Smith (2003) have argued that the vulnerability, unpredictability, and bio-cultural constraints that appear in very old age will make the system of self-protective processes associated with the maintenance of well-being become increasingly vulnerable.

The empirical evidence regarding age differences in the progression of end-of-life well-being is fairly consistent in suggesting that the oldest old are often at the limits of their adaptive capacity. There is evidence to suggest that the pathways into mortality for very old individuals are portended by relatively stronger well-being decline and/or by spending more years in the terminal periods of decline than individuals dying at earlier ages. For example, in the Berlin Aging Study we found that the rate of mortality-related well-being decline for individuals who died after age 85 was twice as steep than that of individuals who died when between ages 70 to 84 years. Similarly, those dying at older ages exhibited a three-fold increase in steepness of decline from the pre-terminal phase to the terminal phase, relative to a much shallower increase for those dying at younger ages. When looking at differences in the onset of terminal decline, we found that individuals dying at older ages spent more years in the terminal periods of life satisfaction decline than individuals dying at earlier ages. This effect amounted to an estimated additional seven months being spent in the terminal-decline phase per additional decade lived (Gerstorf, Ram et al., 2008a). This overall pattern is in line with the virtual lack of empirical support for the Riegel and Riegel hypothesis in the large body of research accumulated in the cognitive aging literature. If anything, studies suggest the opposite with steeper cognitive decline per additional year of age (for review, see Bäckman & MacDonald, 2006).

By and large, the evidence to date suggests that the effects of terminal decline are more pronounced with greater age at death. A related point to be targeted more specifically in future research is how late-life well-being changes manifest in individuals who die at relatively young ages, let's say in their 50s or 60s. Following the reasoning of increasing limits in adaptive capacity (Smith & Baltes, 2003), one

