

# The age and subjective well-being paradox revisited: A multidimensional perspective

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## ABSTRACT

This study re-examines the much-discussed paradox that although aging is associated with declines in many life domains, overall subjective well-being does not appear to decline sharply with age. We use data from two waves of the Norwegian NorLAG study (age 40-85, n=3,750) and examine age differences in change in well-being outcomes (life satisfaction, positive affect, negative affect, and depression) and factors that may account for age variations in such change. Outcomes show stability well into older age, but negative changes in advanced age, cross-sectionally or longitudinally. Life satisfaction and negative affect are adversely related to older age longitudinally, whereas positive affect and depression are adversely related to older age in the cross-section. Results are similar for men and women. Loss of health and partner are the main causes of declining well-being in older age. Findings suggest qualifications to the “well-being paradox”, e.g.: only some dimensions of SWB remain stable, while others decline; across dimensions SWB change is more negative in old-old than in young-old age.

## INTRODUCTION

Old age is related to multiple psycho-social losses and declining health, qualifying later life as a period of decline in objective quality of life (1). In contrast, much research indicates that subjective well-being (SWB) is stable or increasing well into old age (2-5). For example, a review of cross-sectional data of 60,000 individuals aged 20-99 from 63 countries conclude that life satisfaction is relatively stable across age groups in most societies (2). Similarly, a study of 60 countries finds a U-shaped relationship between life satisfaction and age with a minimum level of life satisfaction occurring in the ages 35-50 (3). Also Norwegian cross-sectional data show increasing life satisfaction from age 40 to 80 (6,7). These cross-sectional trends are corroborated by data from large Western panel surveys showing stable or increasing life satisfaction from middle age up to at least about age 70 (5,8-10). The absence of strong declines in SWB at the same time as objective life conditions are deteriorating has been labeled a paradox (11-13).

Three broad explanations for high SWB in old age are typically emphasized. The first addresses the stabilizing influence of personality and adaptational processes (14): changing life circumstances may change SWB for a while, but over time, SWB may fall back to its stable—or baseline—level, determined by personality traits. The second explanation focuses on a greater use among elderly of accommodative strategies, such as downward adjustment of needs, aspirations, and comparison standards (15). These strategies promote well-being by fostering smaller aspirations-achievement gaps among elderly than middle-aged adults (16-18). The third explanation focuses on gains in competencies to regulate emotional experience. Gerontological theory and research maintain that with advancing

age, because people perceive boundaries on their time, they become more and more motivated to regulate their emotional experience (i.e., to maximize positive affect and minimize negative affect) (19). Older adults, for example, tend to drop or distance themselves from less intimate relationships and increase their emotional investments in relationships with significant others (20). With age there seems to be an increased favoring of positive over negative material even at the level of attention and memorial processing: older people, more than younger adults, attend to and remember positive information and memories better than negative ones (21).

Yet, there may be several qualifications to the notion that SWB increases with age. We shall emphasize nine analytical-interpretive limitations in the literature. These limitations suggest that the pattern of high SWB in old age may be an over-simplification of a complex issue.

First, the notion of increasing SWB may not generalize across dimensions of SWB. SWB is as a broad concept comprising both a cognitive component, i.e., “cognitive well-being” (satisfaction with life and with life domains), and an affective component, i.e., “affective well-being”, which is usually further subdivided into positive (e.g., happiness, engagement, and joy) and negative (e.g., worry, fear, uneasiness) affect (22,23). The “well-being paradox” literature typically ignores the multidimensionality of SWB and focuses only on one outcome, namely life satisfaction. It is less clear whether the “paradox” generalizes to the emotional component of SWB. A meta-study of mostly US research shows that positive affect tend to decline over the lifespan, and negative affect is stable but increasing in later life, patterns that are stronger in longitudinal than in cross-sectional studies (24). Similarly, Norwegian cross-sectional data show that happiness

and positive affect decrease and negative affect increases in older age groups (6,7).

Second, age-SWB patterns may vary by gender, a notion that is largely overlooked in the relevant literature. This focus is important given the different role trajectories of men and women (25). For example, since women typically live longer than men, and marry someone older than themselves, older women are more likely to be widowed or a spousal caregiver than are men (26).

Third, age-SWB relationships may vary across countries. A metastudy of 132 countries find that a U-shaped pattern between life satisfaction and age exists only in richer countries; life satisfaction is decreasing with age in poorer countries (4). Part of this heterogeneity likely stems from different welfare regimes. Indeed, life satisfaction among the elderly is particularly low in Eastern European and former Soviet Union countries, a pattern that mirrors low health satisfaction and high levels of disability among the elderly in these countries (4). Age-SWB relationships may be distinctly positive in the Nordic countries, because of more generous pensions and high quality, affordable medical care than in most other countries.

Fourth, the “paradox” of SWB in old age may hold only in early old age. Some longitudinal studies show a steep longitudinal decline in life satisfaction in the ages 70+ (8,10), and a large drop in life satisfaction 2–3 years before death (9,10,27,28). It is thus unfortunate that few studies include the very old (age 80+) and/or examine non-linear patterns of change in SWB in older age (29).

Fifth, high life satisfaction in old age may be an artifact of mainly using single item dependent measures. Because multi-item scales rely on a wider range of information with more specificity, they produce more reliable and stable SWB scores (30) and seem less susceptible to social desirability biases (31) than single item measures. Importantly, older people in particular may tend to give socially acceptable answers in highly general and abstract questions about well-being, as greater SWB among older compared to younger people is more pronounced for single-item than for multi-item scales (32,33).

Sixth, many reports of increasing well-being in older age are based on analyses that control for socioeconomic variables such as marital status and health (5,34). Several researchers argue that the use of controls makes for false impressions of the psychological changes that actually occur when people grow older (4,35). The best solution may be to show age-SWB patterns before and after controls, to indicate actual versus pure aging effects, including the mechanisms that explain patterns of (actual) SWB change.

Seventh, and related to the argument above, age effects may not reflect the effect of aging per se but that of age-related life events: simply getting older may not produce changes in SWB. Again, distinctions between the effects of age and age-related life events may best

be explored in a bivariate-multivariate design.

Eighth, because most of the relevant literature is cross-sectional in nature, it can conflate age-related change with cohort differences (4,8,29). Fewer studies, especially in a Nordic context, examine longitudinal trends in well-being.

Ninth, interpretive caution is warranted due to the inevitable influence of selective participation and attrition, i.e., the exclusion of the frail and institutionalized elderly and the fact that people with low well-being die earlier (29,36). Thus, the literature may portray life-course changes in SWB too “optimistically”.

In summary, there may be at least nine qualifications to the “paradox” of high SWB in old age. The pattern of stable or increasing SWB in old age may: not apply to all dimensions of SWB; differ for men and women; only generalize to richer countries; hold only up to young old age; be an artifact of using single-item dependent measures; hold only after using statistical controls; reflect life course events rather than aging per se; reflect cohort effects rather than aging effects; and reflect the influence of selective attrition.

This paper addresses several of these shortcomings and aims to challenge the “paradox” of high SWB in old age by providing a more nuanced understanding of changes in SWB in the second half of life. We examine inter-person change along a range of multi-item indicators of SWB—covering the positive and negative and cognitive and emotional aspects of SWB—among men and women aged 40–85. SWB indicators include life satisfaction, which captures the cognitive component of SWB, and positive and negative affect and depressive symptoms, which capture the affective component. Depression refers to a negative affective state or affective disorder and can be part of conceptualizations of affective well-being (23). Depression is perhaps the most extreme form of negative affect. We ask: Are there age differences in the magnitude and direction of 5-year changes in different aspects of well-being? Do patterns of change differ for men and women? Are there factors that seem to accelerate or slow the change? Specifically, we ask whether losses in health and social resources compromise well-being in old age. In addition, as examinations of longitudinal change in well-being inevitably are affected by selective attrition between waves of data collection, we also explore differences in initial (wave 1) well-being between continuers and noncontinuers of the panel.

## METHODS

### *Data and sample*

This paper is based upon two-wave panel data from the Norwegian Life Course, Ageing, and Generations (NorLAG) study. NorLAG comprises representative randomly stratified (by age and sex) samples of adults aged 40–79 (in time 1; t1) from 30 Norwegian municipalities representing different geographic regions and contexts. The first wave of data was collected by Sta-

tistics Norway between 2002 and 2003. Respondents were initially interviewed over the phone; after the interview a mailed questionnaire with supplementary questions were sent to the study participants. Data from public registers were added with the respondents' informed consent. The response rate of the telephone interview was 67 percent ( $n=5,559$ ). The postal questionnaire was returned by 75 percent of these, resulting in a combined response rate of 50 percent. Cross-sectional analysis is based on the 4,149 respondents who completed both procedures.

The second wave of the study ( $t_2$ ) was conducted between 2007 and 2008 in the same manner as in  $t_1$ . Panel analysis is based on the 2,673 respondents who completed the telephone interview and the postal questionnaire in both waves (33 percent of the  $t_1$  gross sample).

### Dependent variables

*Life satisfaction* is measured by the Satisfaction With Life Scale (SWLS) (37). The scale comprises five items (e.g., "I am satisfied with my life") measured on a 5-point scale (1 = strongly disagree, 5 = strongly agree). The composite index ( $\alpha = .76$ ) ranges from 1 to 5 (high life satisfaction) (all indices are mean scores and not additive scores). *Positive affect* and *negative affect* are measured by a 11-item version of the Positive and Negative Affect Schedule (PANAS) (38), which comprises five positive emotions (excited, enthusiastic, inspired, determined, interested) and six negative emotions (worried, upset, scared, irritable, nervous, afraid). Respondents were asked to indicate to what extent they felt these emotions during the past two weeks (1 = very slightly or not at all, 5 = extremely). The indices for positive affect ( $\alpha = .83$ ) and negative affect ( $\alpha = .82$ ) range from 1 to 5 (high level of affect). *Depression* is measured with the 20-item Center for Epidemiologic Studies Depression (CES-D) scale (39). Respondents were asked to indicate on a 4-point scale (1 = rarely or none of the time, 4 = all of the time) how often they felt sad, depressed, "that my sleep was restless", "that my life has been a failure," etc., during the previous week. The index ranges from 1 to 4 (high depressive symptoms) ( $\alpha = .86$ ).

### Independent variables

*Health* is measured with the physical component of the 12-item Short Form Health Survey (SF-12) (40). We use health at  $t_1$  (range 10.6-65.3) and change ( $t_2-t_1$ ) in health (range -52.0-37.4). High scores indicate good health. *Employment status* comprises four categories: stable unemployed, unemployed at  $t_1$  and employed at  $t_2$ , stable employed, and employed at  $t_1$  and unemployed at  $t_2$ . "Employed" is defined as having done paid work in the last week. Information about *gender*, *age*, *education*, and *partnership status* are gathered from public registers. *Education* is a linear variable representing years of formal education: 8-10, 11-12, 13-14, 15-17, and 18 or more years (scored as integers from 1 to 5). *Partnership status* comprises four categories:

stable unpartnered (neither married nor cohabiting), unpartnered at  $t_1$  and partnered at  $t_2$ , stable partnered, and partnered at  $t_1$  and unpartnered at  $t_2$ . The presence of a *close friend* at  $t_1$  and  $t_2$  is measured with the item: Do you have a friend that you think will be there for you in case of an emergency (no/yes)? We use four categories: stable no friend, stable friend, no friend at  $t_1$  and friend at  $t_2$ , and friend at  $t_1$  and no friend at  $t_2$ .

### Analytic strategy

We use chi-square tests and t-tests to analyze gender and age group differences in background characteristics and analysis of variance (ANOVA) to examine bivariate differences in SWB between age groups. All multivariate analyses use ordinary least squares (OLS) regressions. We use OLS regression for reasons of familiarity and ease of interpretation. Using OLS regression when the dependent variable is ordinal may be problematic, as it violates the assumption of interval level data. We thus performed all the analyses using an ordinal-probit model (ancillary analyses), and the results were almost identical to those using OLS regression. It has been shown that the choice of methodology (OLS regression, ordinal-probit, or ordinal-logit techniques) in this context makes little difference to the empirical results (41).

## RESULTS

Table 1 presents descriptive statistics for the full sample and the subsample of men and women by age group. As shown, educational level decreases in older age cohorts, especially among women. Employment rates are higher among men than among women, and decreases similarly with higher age for both genders. More women (24 percent) than men (17 percent), in particular in the oldest age group (52 vs. 24 percent), are unpartnered at both  $t_1$  and  $t_2$ . Relatively few individuals change partnership status in the 5-year interval between  $t_1$ - $t_2$ . More women (54 percent) than men (40 percent) have a close friend at both  $t_1$  and  $t_2$ . Men report better health at  $t_1$  than women do, but men—and older men especially—report stronger health decline from  $t_1$  to  $t_2$ .

Table 2 shows cross-sectional and longitudinal age differences in well-being. Because there are no significant ( $p < .05$ ) gender differences in these results, we do not separate analysis by gender. As shown, patterns vary across outcomes and between cross-sectional and longitudinal findings.

*Life satisfaction* is stable with age in the cross-section. Yet longitudinally—over a 5-year interval—life satisfaction is decreasing among adults 70+, especially in the ages 75+. The contrast between cross-sectional stability and longitudinal decline in older age may reflect that the oldest group in the longitudinal analysis is older (age 80-84) than the oldest group in the cross-sectional analysis (age 75-79) and that average negative changes in life satisfaction emerge in

**Table 1.** Descriptive statistics by gender and age (at t1). Means (SD) or proportions (%).

	Men				Women				All
	Age 40-52	Age 53-65	Age 66-79	Total	Age 40-52	Age 53-65	Age 66-79	Total	
Education (1-5)	2.95 (1.11)	2.82 (1.25)	2.58 (1.29)	2.82 (1.21)	2.96 (1.11)	2.56 (1.20)	2.09 (1.09)	2.63 (1.19)	2.72 (1.20)
Employment status t1-t2 (%)									
Stable unemployed	3.7	23.7	81.7	28.0	7.4	29.2	87.6	32.0	30.1
Unemployed-employed	2.3	3.1	3.9	3.0	5.2	2.9	2.5	3.8	3.4
Stable employed	89.2	50.7	5.1	56.4	82.1	44.0	3.7	51.9	54.1
Employed-unemployed	4.8	22.5	9.3	12.6	5.3	23.9	6.2	12.2	12.4
Partnership status t1-t2 (%)									
Stable unpartnered	16.4	14.7	23.8	17.3	20.9	27.3	52.1	29.8	23.7
Unpartnered-partnered	3.8	2.9	1.0	2.9	5.9	1.7	0.7	3.0	2.9
Stable partnered	73.9	77.8	69.6	74.5	67.9	63.1	39.7	60.2	67.1
Partnered-unpartnered	6.0	4.5	5.6	5.3	6.1	8.0	7.5	7.1	6.2
Close friend t1-t2 (%)									
Stable no friend	17.8	30.0	47.5	29.2	12.4	22.5	42.4	21.9	25.3
No friend-friend	17.3	15.3	19.8	17.0	12.3	11.2	16.7	12.7	14.7
Stable friend	52.1	38.3	20.2	39.6	66.1	54.9	25.7	54.2	47.4
Friend-no friend	12.8	16.5	12.5	14.3	9.2	11.4	15.2	11.2	12.6
Physical health									
At t1	51.3 (8.3)	49.0 (10.0)	48.1 (9.9)	49.7 (9.4)	49.7 (10.1)	46.2 (11.7)	43.4 (12.8)	47.1 (11.6)	48.4 (10.7)
Change (t2-t1)	-7.3 (8.7)	-7.3 (10.0)	-8.5 (9.8)	-7.6 (9.4)	-7.4 (8.9)	-6.3 (9.9)	-7.0 (10.9)	-7.0 (9.7)	-7.3 (9.6)
N	434	509	259	1202	585	501	267	1353	2555

Note: All gender and age differences  $p < .05$ .

**Table 2.** Mean well-being at t1 and mean change (t2-t1) in well-being, by age at t1 (n=2,555).

	Life satisfaction (1-5)		Positive affect (1-5)		Negative affect (1-5)		Depression (1-4)	
	t1	t2-t1	t1	t2-t1	t1	t2-t1	t1	t2-t1
Age								
40-45	3.83	.01	3.34	.07	1.96	.04	.50	-.08**
45-49	3.76	.03	3.32	.10**	1.95	-.05	.48	-.06**
50-54	3.79	-.03	3.33	-.01	1.89	.00	.48	-.07**
55-59	3.78	.07*	3.16	.10**	1.90	-.04	.49	-.09**
60-64	3.85	-.00	3.14	.00	1.76	-.02	.47	-.08**
65-69	3.89	-.04	3.03	.02	1.79	.03	.53	-.06**
70-74	3.84	-.10*	2.85	.11**	1.86	.06	.55	-.03
75-79	3.85	-.15**	2.75	.07	1.85	.27**	.65	-.04
Total	3.81	-.01	3.18	.05**	1.90	.01	.50	-.07**
p-value age difference <sup>a</sup>	.175	<.001	<.001	.197	<.001	<.001	<.001	.514
p-value gender x age <sup>b</sup>	.051	.793	.581	.899	.877	.723	.152	.138

\*  $p < .05$ , \*\*  $p < .01$ . Overall differences by F-test <sup>a</sup> between age groups or <sup>b</sup> between age groups by gender.

later life. A more speculative interpretation is that cross-sectional stability (despite late life longitudinal decline) reflects a cohort effect whereby older cohorts (born 1922-1932) are more satisfied than younger cohorts<sup>1</sup>. Put differently, cross-sectional stability may observe the net effect of a positive cohort effect and a

negative aging/life stage effect balancing each other out.

*Negative affect* is lower in the ages 60-69 than in younger and older ages. Consistent with the results for life satisfaction, negative affect is stable in older age (70+) cross-sectionally, but decreasing over time among those older than 75 years. Again, this contrast likely reflects adverse changes in well-being in advanced age.

In contrast, positive affect and depression show adverse patterns in older age in the cross-section but not longitudinally. *Positive affect* decreases progressively with age in the cross-section, but is stable in longitudinal analysis. This trend is confirmed in analysis of happiness, which is often used in the literature on well-

<sup>1</sup> In ancillary analyses (not shown) we explore age effects on a single item measure of life satisfaction ("How satisfied are you with your life nowadays", from 0-10). Results reveal cross-sectional and longitudinal age differences in life satisfaction, with the ages 60-74 reporting significantly higher life satisfaction and more positive change in life satisfaction than both younger (40-59) and older (75-79) age groups. Thus, people in their 60s and 70s report higher life satisfaction than the middle-aged only in a single-item measure of life satisfaction.

**Table 3.** Regressing well-being (at t1) on age at t1 before and after controls. Unstandardized regression coefficients (n=2,555).

	Life satisfaction (1-5)		Positive affect (1-5)		Negative affect (1-5)		Depression (1-4)	
	Unadj.	Adj.	Unadj.	Adj.	Unadj.	Adj.	Unadj.	Adj.
Age t1		**	**	**	**	**	**	*
40-45 (ref.)	—	—	—	—	—	—	—	—
45-49	-.07	-.03	-.02	.01	-.01	-.02	-.02	-.04
50-54	-.04	.00	-.02	.04	-.07	-.08	-.02	-.05
55-59	-.06	.02	-.18**	-.08	-.06	-.07	-.00	-.05
60-64	.02	.15**	-.21**	-.08	-.20**	-.22**	-.03	-.10**
65-69	.06	.27**	-.31**	-.11	-.17**	-.19**	.03	-.09**
70-74	.01	.25**	-.49**	-.24**	-.10	-.13*	.06	-.08*
75-79	.02	.40**	-.59**	-.28**	-.10	-.23**	.15**	.03
Male (female)		-.08**		-.00		-.12**		-.03*
Education (1-5)		.01		.10**		.02		-.02**
Employed (unemployed)		.12**		.10*		.01		.03
Partnered (unpartnered)		.42**		.02		-.03		-.13**
Friend (no friend)		.14**		.31**		-.05		-.12**
Functional health		.01**		.01**		-.01**		-.01**
R <sup>2</sup>	.00	.13	.02	.13	.01	.04	.01	.10

\*  $p < .05$ . \*\*  $p < .01$ . Parameters not presented in the table (e.g., standardized coefficients, SE) are available upon request from the authors.

being as an overall measure of positive affect (23, 26). In ancillary analyses (not shown), we find almost the identical age-related pattern in happiness (measured with one item from the depression scale: “I felt happy”) as found for the positive affect scale. The cross-sectional decrease in positive affect is consistent with international cross-sectional and longitudinal evidence (24). In our data, the contrast between cross-sectional decline and longitudinal stability in positive affect may reflect a negative cohort effect, yet this interpretation remains speculative. Another speculation is that the contrast may reflect the influence of differential selection in elderly and nonelderly groups. Participation may reflect greater vitality—which may be more closely tied to positive affect than life satisfaction—among older respondents, thus producing no average longitudinal change in positive affect from t1 to t2.

Consistent with the results for positive affect, *depressive symptoms* are increasing in the oldest age cohorts, yet stable in the longitudinal design. The cross-sectional increase confirms previous Norwegian and international evidence (6,42). A cohort explanation seems unlikely to account for the contrast between cross-sectional increase and longitudinal stability in depressive symptoms. Perhaps more likely, a “real” longitudinal increase in depressive symptoms in older age is undetected due to disproportionately large attrition/mortality among depressed elderly.

Table 3 presents bivariate and multivariate age-SWB relationships in cross-sectional analysis. Unadjusted results are already discussed in relation to table 2: old age relates to lower positive affect and greater depressive symptoms (and stability in life satisfaction and negative affect). Not surprisingly, age-SWB relationships become more positive in a multivariate

context: old age relates to higher life satisfaction and lower negative affect, and detrimental bivariate trends are “explained away” either partly (positive affect) or completely (depression). Put differently, health and social variables either mediate negative “actual” age effects (positive affect and depression) or suppress “pure” positive age effects (life satisfaction and negative affect).

In table 4, changes in SWB outcomes are regressed on age before and after the introduction of controls. Unadjusted results are already discussed in relation to table 2: old age relates to negative changes in life satisfaction and increasing negative affect (and stability in positive affect and depressive symptoms). In a multivariate context relationships are essentially unchanged, although their magnitudes are weaker. Health and social variables only partly mediate the adverse old age change in life satisfaction and negative affect.

We were also interested in exploring the possibility that attrition between waves of data collection is related to SWB at t1, beyond the effects of known correlates of attrition. Attrition between t1-t2 was the highest among older respondents, especially among older women, and individuals with low-medium education and poor health (43). Table 5 shows mean differences in SWB at t1 between dropouts (participated only at t1) versus continuers (participated at t1 and t2), before and after control for gender, age, education, and health (at t1).

Table 5 shows mixed support for the notion that SWB predicts panel attrition beyond the effects of other covariates. In the bivariate, dropouts report lower life satisfaction and positive affect and greater negative affect and depressive symptoms than do continuers. However, after control attrition only relates to positive and negative affect.

**Table 4.** Regressing change (t2-t1) in well-being on age at t1 before and after controls. Unstandardized regression coefficients (n=2,555).

	Life satisfaction (1-5)		Positive affect (1-5)		Negative affect (1-5)		Depression (1-4)	
	Unadj.	Adj.	Unadj.	Adj.	Unadj.	Adj.	Unadj.	Adj.
Age t1	**	*			**	**		
40-45 (ref.)	—	—	—	—	—	—	—	—
45-49	.02	.02	.03	.02	-.09	-.08	.02	.02
50-54	-.04	-.04	-.08	-.08	-.04	-.03	.02	.02
55-59	.06	.05	.03	.04	-.08	-.10	-.01	.00
60-64	-.01	-.04	-.07	-.09	-.06	-.08	.01	.02
65-69	-.05	-.07	-.05	-.05	-.01	-.07	.02	.05
70-74	-.11*	-.10	.04	.05	.02	-.05	.06	.07
75-79	-.16**	-.17*	-.00	-.01	.23**	.14*	.03	.05
Male (female)		.04		.02		-.03		-.04*
Education (1-5)		-.01		.01		-.02*		.01
Employment status t1-t2								
Stable unemployed		-.03		-.04		.05		.01
Unemployed-employed		.05		.08		.00		-.03
Stable employed		-.04		.05		.01		.02
Empl.-unempl. (ref.)		—		—		—		—
Partnership status t1-t2		**				**		
Stable unpartnered		.13*		.06		.25**		.01
Unpartnered-partnered		.37**		.11		.24*		-.03
Stable partnered		.07		.06		.25**		.05
Partnered-unpartn. (ref.)		—		—		—		—
Close friend t1-t2				*				**
Stable no friend		.03		-.15		.05		-.06*
No friend-friend		.01		.08		-.04		-.08**
Stable friend		.06		.07		-.03		-.05*
Friend-no friend (ref.)		—		—		—		—
Functional health								
At t1		.00		.00		.00		.00
t2-t1 (/10)		.13**		.12**		-.01		-.04**
R <sup>2</sup>	.01	.03	.00	.02	.01	.03	.00	.02

\* p < .05. \*\* p < .01. Parameters not presented in the table (e.g., standardized coefficients, SE) are available upon request from the authors.

**Table 5.** Well-being at t1 regressed on dropouts (versus continuers) before and after control. Unstandardized regression coefficients (n=4,024).

	Life satisfaction (1-5)	Positive affect (1-5)	Negative affect (1-5)	Depression (1-4)
No controls	-.07**	-.22**	.05*	.08**
Control for gender, age, education	-.04	-.08**	.07**	.04**
+ health	-.00	-.06*	.06*	.02

\* p < .05. \*\* p < .01. Parameters not presented in the table (e.g., standardized coefficients, SE) are available upon request from the authors.

## DISCUSSION

Much gerontological research has focused on the paradoxical observation that older people, despite their lower objective quality of life, report higher SWB than younger people. There is consensus that high SWB among the elderly is mainly a result of adaptation, emotional regulation, and accommodative strategies such as rescaling goals and adjusting aspirations to the given situation. In this paper we aim to add nuance to the notion that SWB increases with age by examining whether the notion holds across dimensions of SWB

and for men and women in young old (age 65-80) as well as old-old age (age 80+). We use cross-sectional and two-wave panel data from the Norwegian NorLAG study.

On balance, and with some differences between cross-sectional and longitudinal results, both cognitive well-being (life satisfaction) and affective well-being (high levels of positive affect and low levels of negative affect and depressive symptoms) are remarkably stable from middle age to about age 70, but decreasing thereafter. This decrease is small in magnitude but intensifying in advanced age.

We have identified nine possible qualifications to the notion that SWB increases with age, of which some could not be examined directly in this paper due to data limitations. Findings indicate mixed support for these qualifications.

First, prior work suggests that high SWB in old age is limited to the cognitive component and do not generalize to the affective component of SWB. In contrast, we find that a pattern of stable or increasing SWB from middle age and well into old age exists both for cognitive and affective well-being. Our data indicate stability in both forms of well-being from age 40 to 70, attesting to the resources of individuals to maintain a sense of well-being, even in the face of age-related risks for social losses and declining health. Research shows, for example, that people are better able to regulate their experiences and emotions as they get older (20). Furthermore, by comparing oneself to others of their same age groups, and preferably to those who are worse off, and by reducing goals and needs, older people seem to have less severe and more short-lived emotional reactions to detrimental life events or life conditions (7,44,45). Whether interpreted as a “gain” or simply as “resignation” (46), reductions in aspirations and comparison standards appear adaptive to sustain a sense of well-being in later life.

Second, we asked whether SWB change is different for men and women. Results reveal similar patterns for men and women, despite differences in the role trajectories of men and women. For example, the portion of women that lives alone rises from 40 percent at age 70 to 70 percent at age 80 (from 20 to 30 percent among men) (47).

Third, as prior work suggest more positive age-SWB patterns in stronger welfare states and vice versa, we suggested that the “paradox” may be particularly pronounced in Norway and other advanced welfare states. We were unable to examine this hypothesis directly. Yet at first glance the crude pattern of late life reductions in SWB seems similar in the current data as in previous studies. Thus, people may experience declining SWB across modern welfare states when facing life events such as widowhood, serious health declines, and network deficits.

Fourth, we asked whether the “paradox” holds only for young old age. With some differences between outcomes and cross-sectional and longitudinal findings, results suggest declining well-being after about age 70-75 across all outcomes. This corroborates prior evidence of late-life decline in SWB (8-10,27,28), and suggests that the oldest old may have a distinct and less desirable physical and social profile that causes accelerated decline in SWB. In very old age, when losses intensify, individuals may no longer have the coping resources to maintain high SWB.

Fifth, we suggested that high life satisfaction in old age may be a measurement artifact, as the relevant literature typically uses single item dependent measures and older people in particular tend to report

higher well-being on generic single questions than in multi-item scales (32,33). We find that a pattern of increasing (cross-sectional) life satisfaction from middle age to age 75 emerge only for a single item measure of life satisfaction. Because latent SWB constructs are more reliably and validly measured with multi-item scales, this finding suggests caution when interpreting age-SWB patterns based on single-item SWB measures.

Sixth, increasing SWB in age may only hold after statistical control for socio-economic characteristics. Many reports or discussions about the “paradox” of SWB are based on *adjusted* life satisfaction in age. It can be argued that the use of controls makes for false impressions of the psychological changes that actually occur when people grow older (4,35). We find that high SWB in old age only holds in a multivariate context in cross-sectional analysis. Yet longitudinally, SWB is stable to about age 75 in bivariate and multivariate models. Five-year changes in health and social factors are not large enough to produce marked differences in these results.

Seventh, and related to the former point, we asked whether age has an independent effect on SWB beyond the effect of age-related life conditions. We find that decline in life satisfaction and increasing negative affect among adults aged 75+ are only partly mediated by age-related changes in health and partnership status. Thus, there may be age-related factors unaccounted for that can explain late life decline in SWB. Possible candidates may be other aspects of network size and loss, loneliness, pain, and sleep problems.

Eighth, we asked whether age-SWB patterns may be attributable to cohort effects. Cohort effects can only be distinguished from aging effects in longitudinal analysis, yet this is the first study, to our knowledge, of complex longitudinal changes in SWB using Norwegian data. A cohort effect seems particularly likely with respect to the findings for life satisfaction. Life satisfaction is stable in the cross-section, yet decreasing longitudinally among the elderly. As argued, cross-sectional stability may observe the net effect of a positive cohort effect and a negative aging effect balancing each other out.

Finally, age-SWB relationships may be affected by selective attrition and selective mortality. We are unable to shed light on this directly, yet we find that participation at t2 is selective of individuals with higher levels of positive affect and lower levels of negative affect at t1. Presumably, late life is associated with lower SWB and more adverse changes in SWB than our data suggests, due to the likely influence of selective attrition and mortality, thus excluding institutionalized and frail or sick, who are likely to report below-average levels of SWB.

### Limitations

Several limitations in this study highlight areas for future research. First, we are limited in several ways

by the fact that we are analyzing two time points. Because findings are restricted to two measurement points, they provide limited information about robust change and intraindividual variability. Also, the 5-year time interval between assessment allows a limited window on processes of change. Second, our sample is limited to older adults under age 85 and to non-frail and non-institutionalized adults. With a representative sample of older adults, age patterns in SWB may have been different. People may experience more pronounced changes in SWB at the very end of life than at earlier ages. Other topics that were beyond the scope of this paper and remain for future research are the impact of selective attrition and national-level welfare provisions to the elderly on age-SWB patterns.

## CONCLUSION

The present study partly supports the finding of average stability or increase in SWB reported in past research, but also suggests that this finding needs qualification. First, the overall impression is one of stability in SWB from middle age well into older age. Even the

last phase of life appears to be associated with experiences and events that augment SWB. However, contrary to what is suggested in the literature, change in SWB is not uniform across all of its dimensions. More importantly, SWB is only stable or increasing until young-old age, on average up to about age 70. Later life seems less beneficial in terms of SWB. This observation points to limits to psychological adjustment in very old age. Taken together, SWB is thus less paradoxical than has often been suggested in the literature.

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