European Journal of Ageing (2020) 17:435–444
https://doi.org/10.1007/s10433-019-00548-4

ORIGINAL INVESTIGATION

Young people feel wise and older people feel energetic: comparing age stereotypes and self-evaluations across adulthood

Catherine E. Bowen[1] · **Svenja M. Spuling**[2] · **Anna E. Kornadt**[3] · **Maja Wiest**[4]

Published online: 12 December 2019

Abstract
We use questionnaire data from the MIDUS study ($N = 6325$ and a subsample $n = 2120$) to examine the extent to which people in their late 20s, late 40s and late 60s think that positive characteristics apply to themselves, their age peers and other age groups. Results based on factor analysis confirmed the existence of age stereotypes, such that one constellation of characteristics (wise, caring, calm, knowledgeable, generative; "wise") was seen as more descriptive of older adults, while another constellation of characteristics (energetic, healthy, willing to learn; "energetic") was seen as more descriptive of younger adults. Self-evaluations were, however, highly positive and largely independent of age. As a group, younger adults saw themselves as being as "energetic" but "wiser" than their age peers, while older adults saw themselves as being more "energetic" but less "wise" than their age peers. In sum, the results suggest that self-views are relatively independent of existing age stereotypes but also indicate that the "better-than-average effect" depends on age and whether the considered characteristics represent a relative strength or weakness of one's own age group. The results also indicate that, at the aggregate level, older adults' tendency to use stereotypes about their age group's weaknesses as a frame of reference for making flattering self-evaluations seems to outweigh the effects of stereotype internalization.

Keywords Age stereotypes · Self-perceptions of ageing · Self-evaluations · Better-than-average effect · Life span · Social comparison

Introduction

> You can't teach an old dog new tricks. -Proverb
> In youth and beauty, wisdom is but rare. -Homer

Age stereotypes are ubiquitous and have been observed in diverse samples from around the world (Bowen and Skirbekk 2013; Löckenhoff et al. 2009; North and Fiske 2015; Peterson and Ralston 2017; Voss et al. 2018). Many studies have demonstrated that stereotypes about old age can affect a wide range of cognitive, physical, psychological and social outcomes such as memory performance (e.g. Lamont et al. 2015), health trajectories (Levy et al. 2009, 2012), longevity (Levy et al. 2002), depressive symptoms (Rothermund 2005), personality (Kornadt 2016), social integration (Menkin et al. 2016) and intergenerational relationships and communication (Hummert et al. 1998; Ryan et al. 1995). In the current study, we investigate how young, middle-aged and older people see themselves and their age peers against the backdrop of common age stereotypes. We extend the literature by: (1) integrating previous findings on the "better-than-average effect" (BTAE), the effects of old age stereotypes on self-views and the self-concept across the life span; (2) considering not only old age stereotypes but also stereotypes about younger adults, and (3) analysing data from a large, heterogeneous lifespan sample.

Responsible Editor: Matthias Kliegel.

Guest editors: Anna Kornadt and Verena Klusmann.

✉ Catherine E. Bowen
drcatherineebowen@outlook.com

[1] Vienna, Austria

[2] German Centre of Gerontology (DZA), Manfred-von-Richthofen-Str. 2, 12101 Berlin, Germany

[3] Fakultät für Psychologie und Sportwissenschaft, Differentielle Psychologie und Psychologische Diagnostik, Bielefeld University, Universitätsstraße 25, 33615 Bielefeld, Germany

[4] Free University Berlin, Habelschwerdter Allee 45, 14195 Berlin, Germany

Age stereotypes and self-views: previous research

It is a hallmark of psychology that people generally see themselves positively (Taylor and Brown 1988), and as possessing more positive characteristics than their peers (i.e. BTAE; for overviews, see Alicke and Govorun 2005; Sedikides and Alicke 2012). However, the vast majority of research on BTAE has been based on young adult samples, and little is therefore known about how BTAE may depend on age. So far, just one study based on a convenience sample has systematically compared the BTAE phenomenon across different age groups (Zell and Alicke 2011). In this study, BTAE was weaker among older than among younger and middle-aged adults, suggesting that older adults may be more aware of (and more comfortable acknowledging) their relative strengths and weaknesses, which might produce more modest comparative self-evaluations (Zell and Alicke 2011).

By late midlife and old age, common stereotypes about old age are thought to threaten adults' ability to maintain positive self-views. Indeed, there is considerable evidence that middle-aged and older people tend to *internalize* old age stereotypes, which in turn (negatively) colour how they see themselves as they grow older (Kornadt et al. 2015; Rothermund and Brandtstädter 2003; see also Kuypers and Bengtson 1973; Levy 2009; Rodin and Langer 1980; Rothermund 2005). For instance, Rothermund and Brandtstädter (2003) found that how middle-aged and older people perceived older adults at baseline affected how their self-views changed across 8 years (see Kornadt et al. 2015 for a recent replication based on domain-specific stereotypes and self-ratings). Lin et al. (2017) likewise found that, relative to younger adults, older adults perceived themselves as more similar to a generalized, same-aged peer with regard to personality traits.

Seemingly at odds with evidence of old age stereotype internalization, other evidence suggests that a number of mechanisms help older adults maintain stable and positive views of themselves as they age (Brandtstädter and Greve 1994). For instance, in two studies from Heckhausen and Brim (1997) and Heckhausen and Krueger (1993), older participants saw their own developmental trajectories as more favourable and their problems as less severe than their age peers' trajectories and problems. Likewise, Luszcz and Fitzgerald (1986) found that older participants rated themselves as more flexible, self-sufficient, accepted and socially integrated than their age peers. It thus seems that in some cases, older adults use negative old age stereotypes as frames of reference that allow them to make self-enhancing comparisons (Pinquart 2002). Older adults also tend to dissociate from the group of their (negatively evaluated) same-aged peers (e.g. report feeling younger, see themselves as atypical older adults, downgrade their age peers; for a summary, see Weiss and Kornadt 2018). Weiss and colleagues found that older adults react to negative old age stereotypes by psychologically distancing themselves from the group of older people. Hence, being confronted with old age stereotypes tends to result in contrast effects (Weiss and Freund 2012; Weiss and Lang 2012).

It is somewhat difficult to integrate and contextualize the conflicting findings on BTAE, old age stereotype internalization and contrast effects with more general findings on the stability of the ageing self (cf. Weiss and Kornadt 2018). One reason is that recent discourse has been focused almost exclusively on the detrimental effects of negatively-valenced old age stereotypes. Another reason is that research on BTAE has focused almost exclusively on younger adults, while research on the relationship between old age stereotypes and self-views has focused only on (late) middle-aged and older adults. It is thus currently unknown whether young, middle-aged and older adults differ in their tendency to see themselves more positively than a typical age peer (i.e. more positively than stereotypes about their age group). Young adults, for instance, might find it less threatening to see themselves as just as "un-wise" or "un-generative" as their age peers because they still have time to develop the positive characteristics commonly associated with old age.

It is also currently unknown whether the relationship between self-views and stereotypes about one's age peers differs with regard to whether the considered characteristics represent a comparative advantage or disadvantage of the age group. A meta-analysis found that older people's performance is more affected by stereotypes about their deficits than by stereotypes about their strengths (Meisner 2012), but evidence is mixed about whether the same is true with regard to older people's self-views. In the study by Lin et al. (2017), older adults rated themselves as more similar to same-aged peers with regard to older people's stereotypical strengths than with regard to their stereotypical deficits, and Kornadt (2016) also found tentative evidence for longitudinal effects of strength—but not deficit-related old age stereotypes on personality change. In contrast, Zell and Alicke (2011) observed BTAE among young, middle-aged and older adults for attributes that do not clearly change with age (e.g. intelligence, sociability). They also found that older adults rated themselves *worse* than their age peers on attributes typically associated with age-related decline (e.g. health, athleticism), but no evidence that the magnitude of BTAE differed across young, middle-aged and older adults with regard to the positive traits commonly associated with old age (e.g. wise, emotionally stable).

Current study

In the current study, we compare young, middle-aged and older adults' self-evaluations with stereotypes about young, middle-aged and older adults. We had four hypotheses. First, we expected to confirm the existence of age stereotypes in that particular characteristics would be seen as more or less typical for young relative to older adults. Second, consistent with evidence of the stability of the self-concept across the life span, we expected that self-evaluations would be consistently positive and relatively independent of age. Third, consistent with BTAE, we expected that young, middle-aged and older adults would see themselves as possessing more positive qualities than their peers. Finally, in the light of conflicting evidence on the relationship between specifically *older* adults' self-views and old age stereotypes, we explored the extent to which the relationship between self-views and age stereotypes depended on age group and whether the evaluated characteristics represented relative strengths or weaknesses of the age group.

Methods

Sample

The present study was based on data from the Midlife in the United States (MIDUS) study. A total of $N = 7108$ participants took part in the first wave in 1995/1996 (ages 20–75), but only those with questionnaire data were used for the present analysis ($N = 6325$; $n = 783$ deleted). Overall, the sample was comprised of 52.5% women, and 62% had completed at least some tertiary education. Details about the sampling strategy and additional descriptive characteristics of the MIDUS Wave 1 sample can be found elsewhere (Brim et al. 2004). We used the full sample to analyse the existence of age stereotypes and the extent to which self-views depended on participants' age. A subsample of participants in their late 20s (age 25–30 years; $n = 664$), late 40s (45–50 years; $n = 1010$) and late 60s (65–70 years; $n = 446$) was used to address our research questions regarding how self-views and BTAE depended on age group. The subsample included all participants from the full sample aged within the specified ranges and were chosen to ensure comparability between the self- and peer-ratings (see *Measures* section).

Measures

Age stereotypes

Participants used a scale ranging from 0 (not at all) to 10 (very much) to indicate the extent to which six positive characteristics described young, middle-aged and older adults. Specifically, participants were asked, "Please rate how much you think each of the following characteristics describe most people in their late 20s/40s/60s: calm and even-tempered, willing to learn, energetic, caring, wise, knowledgeable". Additionally, participants were asked, "How would you rate most people in their late 20s/40s/60s on…physically healthy, contribution to the welfare and well-being of others" using a scale from 0 (worst you can imagine) to 10 (best possible you can imagine).

Self-evaluations

Significantly later on in the questionnaire, participants used the same rating scales to indicate the extent to which the same characteristics (see above) currently described themselves.

Analysis

Missing data were very low (< 2.9% across all study items) and was listwise deleted. We first used data from the full sample to conduct two exploratory factor analyses with direct oblimin rotation (i.e. factors were allowed to correlate) of the ratings of people in their late 20s and also of the ratings of people in their late 60s. The purpose of the factor analyses was to examine whether there were constellations of characteristics that were seen as more typical for young than old adults and vice versa, and thus to simplify the analyses by using factor-based scores (i.e. the unweighted average of the items which loaded onto a single factor) to assess how participants rated people in their late 20s, late 40s, late 60s, and themselves. To ensure that it was reasonable to calculate factor-based scores for all age groups, we used IBM SPSS AMOS 26.0.0 to examine whether the factor loadings were invariant across the full sample and the subsamples of young, middle-aged and older participants. We also calculated the internal reliabilities of the characteristics (items) which loaded onto each factor with regard to participants' views of young, middle-aged and older adults and their self-views.

Next, in order to confirm the existence of age stereotypes, we used multivariate repeated-measures analysis of variance based on data from the full sample ($N = 6325$). Target age (i.e. whether adults in their late 20s, late 40s or late 60s were being rated) was entered as a within-subjects factor, and the factor-based age group rating scale scores were the dependent variables. We used contrast tests to examine differences between ratings of people in their late 20s, late 40s and late 60s.

To analyse the relationship between age and self-views, we used multivariate analysis of variance with the factor-based self-rating scale scores as the dependent variables (a) based on the full sample with age (continuous variable)

as a covariate and (b) based on the subsample of young, middle-aged and older adults with age group as a fixed factor. We used Bonferroni post hoc tests to analyse differences between the three age groups.

Finally, to analyse whether the difference between self- and peer-views (i.e. BTAE) depended on age and whether the evaluated characteristics represent relative strengths or weaknesses of the age group, we used data from the subsample of young, middle-aged and older adults ($n = 2120$) and a mixed multivariate model with age group (late 20s/late 40s/late 60s) as a between-subjects factor, rating target (self/peer) as a within-subjects factor, an Age group × Target interaction term, and the factor-based self- and peer-rating scale scores as the dependent variables. We used partial η^2 and Cohen's d as measures of effect size and standard rules of thumb to interpret whether effects were small ($d < .2$), medium ($.2 < d < .5$) or large ($d > .5$) (Cohen 1992). The alpha level was set to .05.

Results

Factor analyses

The exploratory factor analyses of the ratings of people in their late 20s and ratings of people in their late 60s revealed the same, two-factor structure. Specifically, the characteristics *energetic* (factor loadings late 20s/late 60s: .860/.882), *healthy* (.806/.829) and *willing to learn* (.557/.700) loaded onto one factor, while the characteristics *wise* (.886/.887), *caring* (.812/.825), *knowledgeable* (.732/.784), *calm* (.726/.600) and *contribution to others* (.789/.610) loaded onto a second factor. Exploratory factor analyses revealed the same two-factor structure also within each of the subsamples of young, middle-aged and older adults. Furthermore, in a confirmatory model, constraining the factor loadings to be equal across the full sample and the subsamples of young, middle-aged and older adults did not significantly worsen model fit for the ratings of people in their late 20s (ΔX^2 (12) = 19.90, $p = .07$), nor for the ratings of people in their late 60s (ΔX^2 (12) = 8.20, $p = .11$) relative to an unconstrained model. As displayed in Table 1, the internal reliabilities of participants' age group stereotypes and their self-views were moderate to high for both factor-based scales. We refer to the two factor-based scales as "energetic" and "wise" based on the characteristics with the highest factor loadings.

Confirmation of age stereotypes

Mauchly's test of sphericity was significant in all of the multivariate models; we therefore used corrected significance levels (Wilks' Λ). Participants rated adults in their late 20s, late 40s and late 60s differently, $F(4, 24{,}978) = 8261.47$, $p < .0001$; Wilks' $\Lambda = 0.19$, $\eta p^2 = .57$. The univariate tests confirmed that the ratings differed based on target age for both "energetic" ($\eta p^2 = .53$) and "wise" ($\eta p^2 = .72$), both $p < .001$. The results of the within-subjects contrast tests confirmed that participants saw "energetic" as more descriptive of people in their late 20s than of people in their late 40s ($M = 7.75$ vs. $M = 6.83$, $F(1, 6245) = 2837.31$, $p < .001$, $\eta p^2 = .31$, $d = .68$) and also more descriptive of people in their late 40s than of people in their late 60s ($M = 6.83$ vs. $M = 5.24$, $F(1, 6245) = 8973.18$, $p < .001$, $\eta p^2 = .59$; $d = 1.22$). In contrast, participants indicated that "wise" was *less* descriptive of people in their late 20s than of people in their late 40s ($M = 4.65$ vs. $M = 6.78$, $F(1, 6245) = 17{,}601.74$, $p < .001$, $\eta p^2 = .74$; $d = -0.69$) and also *less* descriptive of people in their late 40s than of people in their late 60s ($M = 6.78$ vs. $M = 7.85$, $F(1, 6245) = 6115.69$, $p < .001$, $\eta p^2 = .50$, $d = -1.00$). Figure 1 displays the extent to which participants indicated that "energetic" and "wise" described most people in their late 20s, late 40s, and late 60s. Validating

Table 1 Internal reliabilities of the "energetic" and "wise" characteristics as determined by factor analysis

	Self-evaluation items	Age stereotype items		
		Late 20s	Late 40s	Late 60s
Characteristics				
Energetic	.644	.658	.736	.738
Wise	.680	.854	.852	.795

Cronbach's alpha was used as a measure of reliability. "Energetic" consisted of three items: *energetic*, *healthy* and *willing to learn.* "Wise" consisted of five items: *wise, caring, knowledgeable, calm* and *contribution to others*

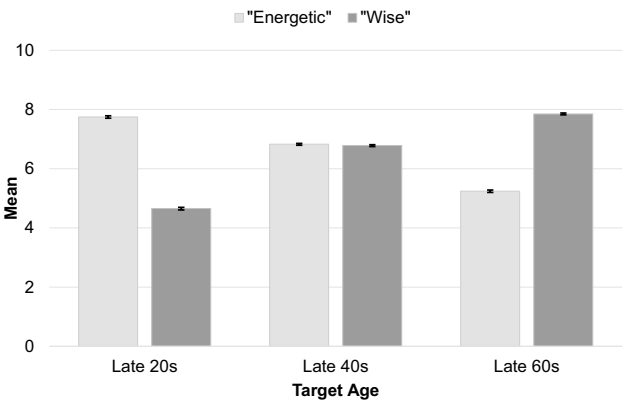

Fig. 1 Perceptions of how "energetic" and "wise" people in their late 20s, late 40s and late 60s are in general (based on estimated marginal means; means with non-overlapping confidence intervals are significant at $p < .05$). Analysis based on full sample ($N = 6325$)

our factor interpretation, the constellation of "energetic" characteristics was seen as more descriptive of younger than older people, while the constellation of "wise" characteristics was seen as more descriptive of older than younger people.

Self-evaluations

Participants rated themselves as highly "energetic" ($M = 7.68$, SD = 1.37) and quite "wise" ($M = 7.52$, SD = 1.20). Age (as a continuous variable) was significantly but only very weakly related to self-views in the full sample, $F(2, 6301) = 100.04$, Wilks' $\Lambda = .97$, $p < .001$, $\eta p^2 = .03$; estimated parameters: $B = -.01$ for "energetic" and $B = .01$ for "wise"). Likewise, age group was significantly but only very weakly related to self-views in the subsample of young, middle-aged and older adults, $F(4, 4258$, Wilks' $\Lambda = .96$, $p < .001$, $\eta p^2 = .02$). Specifically, participants in their late 20s rated themselves as slightly more "energetic" than participants in their late 40s ($M = 7.91$ vs. $M = 7.69$, $M_{diff} = .22$, SE = .07, $p = .002$, $d = 0.18$). Participants in their late 20s also saw themselves as being slightly less "wise" than participants in their late 40s ($M = 7.35$ vs. $M = 7.58$, $M_{diff} = -.23$, SE = .06, $p < .001$, $d = -0.19$). In contrast, there was no significant difference between the self-views of participants in their late 40s and late 60s ("energetic": $M = 7.69$ vs. $M = 7.59$, $M_{diff} = .10$, SE = .07, $p = .47$; "wise": $M = 7.58$ vs. $M = 7.61$, $M_{diff} = -.04$, SE = .07, $p = 1.00$) (Fig. 2).

Evaluations of self versus age peers

The mixed multivariate model yielded a main effect of age group, Wilks' $\Lambda = .46$, $F(4, 4234) = 500.29$, $p < .001$, $\eta p^2 = .32$. Specifically, "energetic" self- and peer-ratings were more positive for younger age groups, while "wise" self- and peer-ratings were more positive for older age groups. There was also a main effect of target such that self-ratings were more positive than peer-ratings, Wilks' $\Lambda = .67$, $F(2, 2117) = 519.01$, $p < .001$, $\eta p^2 = .33$. Finally, the Age group x Target interaction was also significant, Wilks' $\Lambda = .52$, $F(4, 4234) = 405.86$, $p < .001$, $\eta p^2 = .28$. The results of the within-subjects contrast tests confirmed that the difference between self- and peer-ratings depended on age group with regard to both the "energetic" ($SS = 372.26$, $df = 2$, $MS = 186.13$, $F = 154.33$, $p < .001$, $\eta p^2 = .13$) and "wise" characteristics ($SS = 923.71$, $df = 2$, $MS = 461.85$, $F = 478.63$, $p < .001$, $\eta p^2 = .31$). Specifically, the difference between self- and peer-evaluations with regard to the constellation of "energetic" traits was lowest for participants in their late 20s ($d = .04$), larger for participants in their late 40s ($d = .71$) and largest for participants in their late 60s ($d = .1.04$), while the mean difference between participants' self- and peer-evaluations for the constellation of "wise" traits was largest for participants in their late 20s ($d = 1.58$), smaller for participants in their late 40s ($d = 0.64$) and smallest for participants in their late 60s ($d = -0.24$). Figure 3 displays how the subsamples of young, middle-aged and older adults evaluated themselves and their age peers with regard to being "energetic" and "wise".

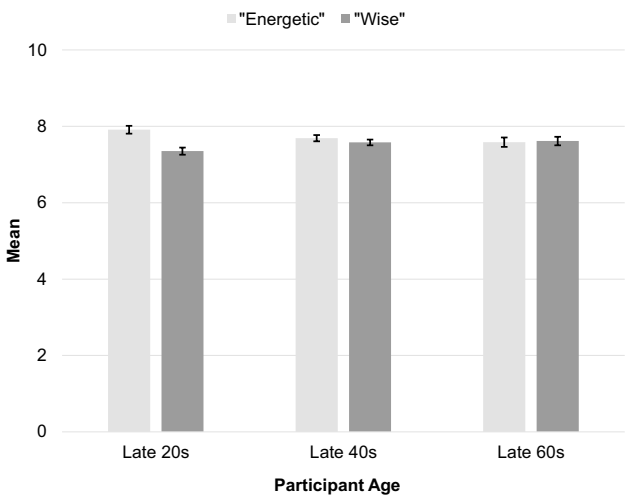

Fig. 2 How "energetic" and "wise" people in their late 20s, late 40s and late 60s see themselves (based on estimated marginal means; means with non-overlapping confidence intervals are significant at $p < .05$). Analysis based on the subsample of participants in their late 20s (age 25–30 years; $n = 664$), late 40s (45–50 years; $n = 1010$) and late 60s (65–70 years; $n = 446$)

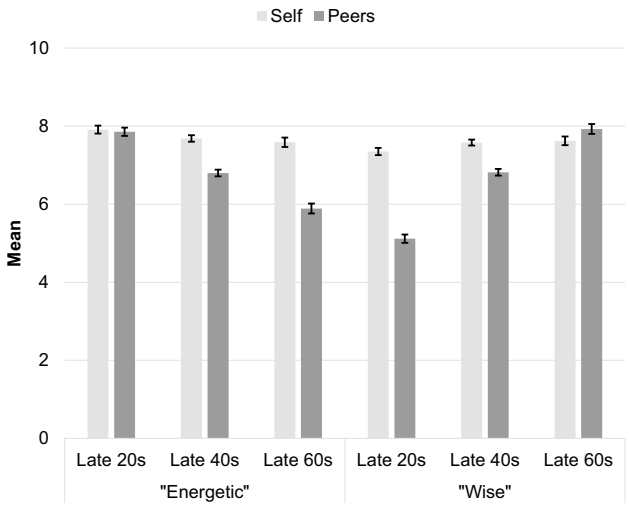

Fig. 3 How "energetic" and "wise" people in their late 20s, late 40s and late 60s evaluate themselves and their age peers (based on estimated marginal means; means with non-overlapping confidence intervals are significant at $p < .05$). Analysis based on the subsample of participants in their late 20s (age 25–30 years; $n = 664$), late 40s (45–50 years; $n = 1010$) and late 60s (65–70 years; $n = 446$)

Discussion

(Younger) people tend to see themselves positively (Taylor and Brown 1988) and also more positively than their peers (Sedikides and Alicke 2012). Nevertheless, common age stereotypes may make it difficult for (late middle-aged and older) adults to see themselves in a positive light. Findings that the self-concept is remarkably robust across the life span (Brandtstädter and Greve 1994) and that older people tend to distance themselves from the negatively stereotyped group of "old people" (Weiss and Lang 2012) are somewhat at odds with the evidence that people internalize negative old age stereotypes, which in turn colour how middle-aged and older see themselves as they age (Levy 2009; Rothermund 2005). Our study makes a first step toward bringing these separate bodies of research together by examining and comparing how young, middle-aged and older adults are perceived in general (i.e. age stereotypes), how young, middle-aged and older adults see their own age group (i.e. peer-evaluations) and how young, middle-aged and older adults see themselves (i.e. self-evaluations).

First, our results confirmed the existence of age stereotypes; a constellation of characteristics based on factor analysis (wise, caring, calm, knowledgeable, generative) was seen as most descriptive of older adults, while a second constellation of characteristics (energetic, healthy, willing to learn) was seen as most descriptive of young adults. Follow-up analyses revealed that the ratings depended only very slightly on participants' own age ($\eta p^2 = .03$; estimated $B = -.01$ for "energetic" and $B = .01$ for "wise"). The results add to the extensive and growing literature on age stereotypes (for reviews, see Bowen et al. 2014; Hess 2006; Hummert 2015; Popham and Hess 2015; Staudinger 2015). Old age stereotypes meaningfully affect particularly older people's health, health behaviour and even mortality (Wurm et al. 2017) as well as other aspects of "successful ageing" such as social integration (Menkin et al. 2016) and intergenerational communication (Hummert et al. 1998). Our findings underscore that not only older people, but also younger people are confronted with stereotypes about their age group. Importantly, in the current study all of the rated characteristics were positively valenced and mixed with regard to content domain (e.g. physical health, willing to learn, generative, calm). Our findings therefore provide more evidence that age stereotypes are multifaceted (e.g. Diehl et al. 2014; Hummert et al. 1994; Kornadt and Rothermund 2015; Wurm et al. 2017), do not represent a single continuum from positive (young) to negative (old), nor can they be easily sorted into the competence—warmth dimensions put forth by Cuddy et al. (2005).

Second, we found that adults of all ages and in each age group saw themselves as being highly "energetic" *and* "wise" (all age group means were above $M = 7.3$ on a scale ranging from 0 to 10). Consistent with evidence of the stability of the ageing self (Brandtstädter and Greve 1994), our results also indicate that, on the whole, age (as a continuous variable) was only weakly related to self-views and there was little difference in the extent to which young, middle-aged and older adults viewed themselves as being either "energetic" or "wise". We did, however, observe small differences between how "energetic" and "wise" adults in their late 20s and adults in their late 40s perceived themselves, while we observed no differences in the self-views of adults in their late 40s and late 60s. Although our cross-sectional analysis limits our ability to draw conclusions about developmental changes, the results are consistent with the idea that the third and fourth decades of life represent a transitional phase with regard to how adults perceive themselves. Given the small magnitude of the differences ($d < .2$), however, the results suggest that the transition from young to middle adulthood is probably characterized more by *stability* than by major disruptions in the self-concept (see Freund and Ritter 2009 regarding the myth of the midlife crisis).

Third, our results were generally in line with BTAE whereby people tend to see themselves as possessing more (or at least as many) positive qualities than their typical age peers. However, we also found evidence that the magnitude of BTAE depends on age and whether the assessed characteristics are "age typical". Specifically, we found that BTAE was *larger with age* for the "energetic" characteristics (seen as more typical for younger people), but *smaller with age* for the "wise" characteristics (seen as more typical of older people). This pattern of results appears to arise because how adults see *themselves* is only weakly related to age, but how adults see their age peers is consistent with common age stereotypes. As a result, we found that all age groups rated themselves as least as or more "energetic" than their age peers and that young and middle-aged adults also rated themselves as "wiser" than their age peers. As a group, however, older adults in fact rated themselves as *less* wise than their peers.

Lin et al. (2017) found that older adults tend to distance themselves from their own age group when they view their own age group more negatively. Similarly, we found that the average difference between older participants' self- and peer-evaluations with regard to "energetic" was much larger than the average difference between their self- and peer-evaluations with regard to "wise" (see Fig. 3). Our results are, however, inconsistent with the results of Zell and Alicke (2011), who found that older adults rated themselves as *less* healthy but also wiser than their average age peers. Potentially, the population-based MIDUS sample (vs. a much smaller convenience sample) and/or the more subtle assessment procedure may explain the divergence in results. Unlike in the

current study, participants in the Zell and Alicke's (2011) study were *simultaneously* instructed to rate themselves and an average peer of the same age and gender. Hence, the procedure prompted participants to directly compare themselves with their peers and also may have made "age" a more salient dimension of their self-evaluations.

At the aggregate level, contrast effects seem to outweigh the effects of internalization with regard to how "energetic" older adults see themselves. We note, however, that the magnitude of the BTAE was smaller with regard to "energetic" for older adults than with regard to "wise" for younger adults. Thus, the results may also provide some evidence of internalization (or, alternatively, realistic perceptions of change). The result that older adults saw themselves as less "wise" than their peers suggests that older adults do not readily integrate stereotypes about older people's strengths into their self-concepts. At least some of the positive characteristics associated with old age—wisdom in particular—are in fact difficult to achieve and not necessarily correlated with chronological age (Staudinger 1999; Staudinger and Glück 2011). Thus, some "positive" old age stereotypes may represent unrealistic expectations. People who do not find themselves becoming more wise or generative as they grow older might use the old age stereotype as the basis for upward comparisons, resulting in relatively negative self-evaluations.

Taken together, the current results show that, despite the existence of age stereotypes, there is little difference in the extent to which the young, middle-aged and older adults in our study perceived *themselves* as being "energetic" or "wise". We also observed that adults of all ages appear to use stereotypes about their age group's relative weaknesses as a source for making flattering social comparisons (e.g. Heckhausen and Brim 1997; Heckhausen and Krueger 1993; Luszcz and Fitzgerald 1986; Pinquart 2002). However, in our study older adults appeared to profit less from stereotypes about their age group's relative strengths (i.e. wisdom) than about their relative weaknesses (i.e. energy) with regard to the positivity of their self-views (see Lin et al. 2017, Study 2 for different findings), and also appear to profit less from stereotypes about their age group's weaknesses relative to younger age groups. The results may reflect age differences in the motivation to see oneself positively, ability to accept negative aspects of the self, and/or the accuracy of self- and other-perceptions.

On the one hand, our results can be interpreted as "good news" in that people appear to be able to maintain highly positive self-views across adulthood despite the existence of age stereotypes, at least according to mean levels assessed with a questionnaire measure at a particular moment in time and for the age range considered here. However, we would like to point out that internalization effects may dominate when it comes to more implicit, everyday processes leading to assimilation of the self to stereotypes about older people's relative weaknesses over the long term (Rothermund 2005). Furthermore, internalization may depend strongly on age and domain of functioning (Kornadt et al. 2015), and thus, it is unclear whether the same pattern of results also extends to other (especially older) age groups and characteristics. In general, more research is needed to understand the conditions under which internalization or contrast effects emerge (Weiss and Kornadt 2018).

We would also like to point out that acknowledging negative aspects about oneself—including how one might have changed for the worse with age—is critical for stimulating efforts to change either oneself or one's environment in a way that promotes long-term resilience and personal growth. For instance, people who see themselves as highly energetic and healthy may lack the stimulus to engage in health-promoting behaviours, and people who consider themselves very wise may ignore opportunities to learn from alternative perspectives. Hence, the current results may also reflect the finding that people's insight into their own lives (i.e. their *personal wisdom*) actually appears to decline with age for the majority of people (Mickler and Staudinger 2008; Staudinger and Kessler 2009). The results may thus also indicate "bad news" in that common age stereotypes do not appear to stimulate younger people's effort to consciously invest in gaining wisdom and contribute to the welfare of others, nor to stimulate older people's effort to invest in their health and willingness to learn.

Strengths, limitations and suggestions for future research

The current study represents one of the few attempts to integrate research on (old) age stereotypes and more general research on self-perceptions across the life span. Our large lifespan sample was much more heterogeneous and representative than the samples used in previous studies with a similar objective (Lin et al. 2017; Zell and Alicke 2011). Due to the size of the MIDUS sample, we were able to select participants whose age matched exactly with the age categories assessed with the age stereotypes measure and thus could maximize comparability between the self-evaluations and the respective age stereotype.

Future research should address the limitations of the current study. Most notably, although MIDUS has several longitudinal waves, age stereotypes were only assessed during the first wave. We were therefore only able to analyse cross-sectional data and are hence unable to draw conclusions about the longitudinal, potentially age-dependent effect of age stereotypes on self-views over time and vice versa. Longitudinal studies using correlational methods usually find evidence of internalization (Rothermund and Brandtstädter 2003) that might also depend on age (Kornadt

et al. 2015), whereas research demonstrating BTAE or dissociation effects is mostly cross-sectional or experimental (Heckhausen and Brim 1997; Luszcz and Fitzgerald 1986; Pinquart 2002; Weiss and Freund 2012; Weiss and Lang 2012). Future research should address how the time frame and assessment procedure may affect the extent to which people appear to integrate age stereotypes into their self-views versus use stereotypes as the basis for self-enhancing comparisons (cf. Weiss and Kornadt 2018), as well as investigate when and for whom the internalization mechanism acts most strongly (cf. Kornadt et al., this volume).

Social desirability concerns make it difficult to assess people's stereotypes (Rudman et al. 2007). We examined only positively valenced age-relevant characteristics, which may have helped to minimize social desirability concerns: although people are reluctant to describe a group negatively (e.g. selfish), they may be less reluctant to describe a group less positively (e.g. less concerned with others). However, our results may not generalize to negatively valenced age-relevant characteristics (e.g. that older adults are sick or younger adults are impolite; Grühn et al. 2011). We also found that BTAE depended on age and the evaluated characteristics. Other studies that compared self- and peer-evaluations in different age groups have reached somewhat different conclusions than we did here (Lin et al. 2017; Zell and Alicke 2011). Future research should investigate whether age moderates the relationship between self- and peer-evaluations (e.g. due to developmental and/or historical changes) also with regard to negative characteristics and characteristics less strongly associated with age (e.g. intelligent, friendly; Grühn et al. 2011). Future research should also assess the extent to which the data collection procedure affects the relationship between self- and peer-ratings (e.g. whether people rate themselves and their peers concurrently or at different time points). Finally, it might be interesting to investigate how people change how they weight the importance of characteristics they feel are declining over time when evaluating their overall self-esteem (i.e. self-immunization, Greve and Wentura 2010).

Conclusion

Despite confirming the existence of age stereotypes, in the current study we found that young, middle-aged and older adults generally see *themselves* as both wise and energetic, with only negligible differences between age groups. Furthermore, our results suggest that older adults' tendency to use stereotypes about their relative weaknesses as a frame of reference for making flattering self-evaluations appears to outweigh the effects of internalization, at least on the conscious level. We heartily encourage more research on the relationship between age stereotypes and self-views across adulthood that takes into account that adults of *all* ages are confronted with stereotypes, that how one views oneself (in relation to others) may change with age and differ across generations, and that whether an age stereotype has a beneficial or detrimental effect depends on the context, time frame and specific outcome considered.

Acknowledgements This work is a result of the research network "Images of Aging: Via a dynamic life span model to new perspectives for research and practice", funded by a grant of the German Research Foundation (KL 3072/1-1) awarded to Verena Klusmann.

Funding Since 1995 the MIDUS study has been funded by the following: John D. and Catherine T. MacArthur Foundation Research Network, National Institute on Aging (P01-AG020166), and the National Institute on Aging (U19-AG051426).

References

Alicke MD, Govorun O (2005) The Better-Than-Average Effect. In: Alicke MD, Dunning A, Krueger JI (eds) Studies in self and identity: the self in social judgment. Psychology Press, New York, pp 85–106

Bowen CE, Skirbekk V (2013) National stereotypes of older people's competence are related to older adults' participation in paid and volunteer work. J Gerontol B Psychol Sci Soc Sci 68:974–983. https://doi.org/10.1093/geronb/gbt101

Bowen CE, Kornadt A, Kessler E-M (2014) Die Rolle von Altersbildern im Lebenslauf [The role of images of aging in the life course]. In: Wahl H-W, Kruse A (eds) Lebensläufe im Wandel–Sichtweisen verschiedener Disziplinen. Kohlhammer, Stuttgart, pp 287–298

Brandtstädter J, Greve W (1994) The aging self: stabilizing and protective processes. Dev Rev 14:52–80. https://doi.org/10.1006/drev.1994.1003

Brim OG, Ryff CD, Kessler RC (2004) MIDUS national survey: an overview. In: Brim OG, Ryff CD, Kessler RC (eds) How healthy are we? A national study of well-being at midlife. University of Chicago Press, Chicago, pp 1–34

Cohen J (1992) A power primer. Psychol Bull 112:155–159. https://doi.org/10.1037/0033-2909.112.1.155

Cuddy AJC, Norton MI, Fiske ST (2005) This old stereotype: the pervasiveness and persistence of the elderly stereotype. J Soc Issues 61:267–285. https://doi.org/10.1111/j.1540-4560.2005.00405.x

Diehl M, Wahl H-W, Barrett AE et al (2014) Awareness of aging: theoretical considerations on an emerging concept. Dev Rev 34:93–113. https://doi.org/10.1016/j.dr.2014.01.001

Freund AM, Ritter JO (2009) Midlife crisis: a debate. Gerontology 55:582–591. https://doi.org/10.1159/000227322

Greve W, Wentura D (2010) True lies: self-stabilization without self-deception. Conscious Cogn 19:721–730. https://doi.org/10.1016/j.concog.2010.05.016

Grühn D, Gilet A-L, Studer J, Labouvie-Vief G (2011) Age-relevance of person characteristics: persons' beliefs about developmental change across the lifespan. Dev Psychol 47:376–387. https://doi.org/10.1037/a0021315

Heckhausen J, Brim OG (1997) Perceived problems for self and others: self-protection by social downgrading throughout adulthood. Psychol Aging 12:610–619

Heckhausen J, Krueger J (1993) Developmental expectations for the self and most other people: age grading in three functions of social comparison. Dev Psychol 29:539–548

Hess TM (2006) Attitudes toward aging and their effects on behaviour. In: Birren JE, Schaie KW, Abeles RP, Gatz M, Salthouse T (eds) Handbook of the psychology of aging, 6th edn. Elsevier, Amsterdam, pp 379–406. https://doi.org/10.1016/B978-012101264-9/50020-3

Hummert ML (2015) Experimental research on age stereotypes: insights for subjective aging. Ann Rev Gerontol Geriatr 35:79–97. https://doi.org/10.1891/0198-8794.35.79

Hummert ML, Garstka TA, Shaner JL, Strahm S (1994) Stereotypes of the elderly held by young, middle-aged, and elderly adults. J Gerontol 49:240–249

Hummert ML, Shaner JL, Garstka TA, Henry C (1998) Communication with older adults: the influence of age stereotypes, context, and communicator age. Hum Commun Res 25:124–151. https://doi.org/10.1111/j.1468-2958.1998.tb00439.x

Kornadt AE (2016) Do age stereotypes as social role expectations for older adults influence personality development? J Res Pers 60:51–55. https://doi.org/10.1016/j.jrp.2015.11.005

Kornadt AE, Rothermund K (2015) Views on aging: domain-specific approaches and implications for developmental regulation. Ann Rev Gerontol Geriatr 35:121–144. https://doi.org/10.1891/0198-8794.35.121

Kornadt AE, Voss P, Rothermund K (2015) Age stereotypes and self-views revisited: patterns of internalization and projection processes across the life span. J Gerontol B Psychol Sci Soc Sci. https://doi.org/10.1093/geronb/gbv099

Kuypers JA, Bengtson VL (1973) Social breakdown and competence. Hum Dev 16:181–201. https://doi.org/10.1159/000271275

Lamont RA, Swift HJ, Abrams D (2015) A review and meta-analysis of age-based stereotype threat: negative stereotypes, not facts, do the damage. Psychol Aging 30:180–193. https://doi.org/10.1037/a0038586

Levy B (2009) Stereotype embodiment: a psychosocial approach to aging. Curr Dir Psychol Sci 18:332–336. https://doi.org/10.1111/j.1467-8721.2009.01662.x

Levy BR, Slade MD, Kunkel SR, Kasl SV (2002) Longevity increased by positive self-perceptions of aging. J Pers Soc Psychol 83:261–270. https://doi.org/10.1037/0022-3514.83.2.261

Levy BR, Zonderman AB, Slade MD, Ferrucci L (2009) Age stereotypes held earlier in life predict cardiovascular events in later life. Psychol Sci 20:296–298. https://doi.org/10.1111/j.1467-9280.2009.02298.x

Levy BR, Slade MD, Murphy TE, Gill TM (2012) Association between positive age stereotypes and recovery from disability in older persons. JAMA 308:1972–1973. https://doi.org/10.1001/jama.2012.14541

Lin T, Ankudowich E, Ebner NC (2017) Greater perceived similarity between self and own-age others in older than young adults. Psychol Aging 32:377–387. https://doi.org/10.1037/pag0000173

Löckenhoff CE, De Fruyt F, Terracciano A et al (2009) Perceptions of aging across 26 cultures and their culture-level associates. Psychol Aging 24:941–954. https://doi.org/10.1037/a0016901

Luszcz MA, Fitzgerald KM (1986) Understanding cohort differences in cross-generational, self, and peer perceptions. J Gerontol 41:234–240. https://doi.org/10.1093/geronj/41.2.234

Meisner BA (2012) A meta-analysis of positive and negative age stereotype priming effects on behaviour among older adults. J Gerontol B Psychol Sci Soc Sci 67B:13–17. https://doi.org/10.1093/geronb/gbr062

Menkin JA, Robles TF, Gruenewald TL et al (2016) Positive expectations regarding aging linked to more new friends in later life. J Gerontol B Psychol Sci Soc Sci. https://doi.org/10.1093/geronb/gbv118

Mickler C, Staudinger UM (2008) Personal wisdom: validation and age-related differences of a performance measure. Psychol Aging 23:787–799. https://doi.org/10.1037/a0013928

North MS, Fiske ST (2015) Modern attitudes toward older adults in the aging world: a cross-cultural meta-analysis. Psychol Bull 141:993–1021. https://doi.org/10.1037/a0039469

Peterson L, Ralston M (2017) Valued elders or societal burden: cross-national attitudes toward older adults. Int Sociol 32:731–754. https://doi.org/10.1177/0268580917726943

Pinquart M (2002) Good news about the effects of bad old-age stereotypes. Exp Aging Res 28:317–336. https://doi.org/10.1080/03610730290080353

Popham LE, Hess TM (2015) Theories of age stereotyping and views of aging. In: Pachana NA (ed) Encyclopedia of geropsychology. Springer, Singapore, pp 1–10

Rodin J, Langer E (1980) Aging labels: the decline of control and the fall of self-esteem. J Soc Issues 36:12–29. https://doi.org/10.1111/j.1540-4560.1980.tb02019.x

Rothermund K (2005) Effects of age stereotypes on self-views and adaptation. In: Greve W, Rothermund K, Wentura D (eds) The adaptive self: personal continuity and intentional self-development. Hogrefe and Huber, Ashland, pp 223–242

Rothermund K, Brandtstädter J (2003) Age stereotypes and self-views in later life: evaluating rival assumptions. Int J Behav Dev 27:549–554. https://doi.org/10.1080/01650250344000208

Rudman LA, Phelan JE, Heppen JB (2007) Developmental sources of implicit attitudes. Pers Soc Psychol Bull 33:1700–1713. https://doi.org/10.1177/0146167207307487

Ryan EB, Hummert ML, Boich LH (1995) Communication predicaments of aging: patronizing behaviour toward older adults. J Lang Soc Psychol 14:144–166. https://doi.org/10.1177/0261927X95141008

Sedikides C, Alicke MD (2012) Self-enhancement and self-protection motives. Oxford University Press, Oxford. https://doi.org/10.1093/oxfordhb/9780195399820.013.0017

Staudinger UM (1999) Older and wiser? Integrating results on the relationship between age and wisdom-related performance. Int J Behav Dev 23:641–664. https://doi.org/10.1080/016502599383739

Staudinger UM (2015) Images of aging: outside and inside perspectives. Ann Rev Gerontol Geriatr 35:187–209. https://doi.org/10.1891/0198-8794.35.187

Staudinger UM, Glück J (2011) Psychological wisdom research: commonalities and differences in a growing field. Annu Rev Psychol 62:215–241. https://doi.org/10.1146/annurev.psych.121208.131659

Staudinger UM, Kessler E-M (2009) Adjustment and growth: two trajectories of positive personality development across adulthood. In: Smith MC, DeFrates-Densch N (eds) Handbook of research on adult learning and development. Routledge, New York, pp 241–268

Taylor SE, Brown JD (1988) Illusion and well-being: a social psychological perspective on mental health. Psychol Bull 103:193–210. https://doi.org/10.1037/0033-2909.103.2.193

Voss P, Kornadt AE, Hess TM et al (2018) A world of difference? Domain-specific views on aging in China, the US, and Germany. Psychol Aging 33:595–606. https://doi.org/10.1037/pag0000237

Weiss D, Freund AM (2012) Still young at heart: negative age-related information motivates distancing from same-aged people. Psychol Aging 27:173–180. https://doi.org/10.1037/a0024819

Weiss D, Kornadt AE (2018) Age-stereotype internalization and dissociation: contradictory processes or two sides of the same coin? Curr Dir Psychol Sci 27:477–483. https://doi.org/10.1177/0963721418777743

Weiss D, Lang FR (2012) "They" are old but "I" feel younger: age-group dissociation as a self-protective strategy in old age. Psychol Aging 27:153–163. https://doi.org/10.1037/a0024887

Wurm S, Diehl M, Kornadt AE et al (2017) How do views on aging affect health outcomes in adulthood and late life? Explanations

for an established connection. Dev Rev 46:27–43. https://doi.org/10.1016/j.dr.2017.08.002

Zell E, Alicke MD (2011) Age and the better-than-average effect. J Appl Soc Psychol 41:1175–1188. https://doi.org/10.1111/j.1559-1816.2011.00752.x