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Do partnership transitions affect individual perceptions of aging in later life? Findings from the German Ageing Survey and the NRW80+ study

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Abstract

Objective: The study examines how the individual perceptions of aging (PA) differ by partnership status and develop with the transitions to widowhood, of divorce/separation, and repartnering in later adulthood in Germany.

Background: In previous research from other countries, there is contradictory evidence on the association of partnership status/transitions and PA. Although PA are a crucial indicator for the living conditions of older adults, little is known about their associations with partnership transitions in Germany.

Method: We use panel data from six waves of the German Ageing Survey (1996-2017, n=4,227) and the first two waves of the NRW80+ study (2017-2020, n=845) for retired respondents. We apply linear hybrid models to analyze inter- and intra-individual differences after widowhood, divorce/separation, and the formation of new partnerships.

Results: We observe stable associations of partnership status/transitions and PA only for single dimensions of aging. For example, widowed individuals feel more dependent on others than married individuals. After the transition to widowhood, individuals feel freer to spend their time as they like. Repartnered individuals have more positive PA than singles. Additionally, we found contradictory gender differences for older and oldest old individuals.

Conclusion: In contrast to recent findings, we show that there is only little association of partnership status or partnership transitions and PA in Germany. Our findings emphasize the importance of a multidimensional conceptualization of PA in current research.

Key words: widowhood, divorce, repartnering, older age, hybrid panel regression

1. Introduction

With the increasing life expectancy, partnership transitions of older adults are becoming more complex and diverse (Klaus & Mahne, 2019). However, transitions such as the loss of a partner remain expectable in later life especially for women (Martin-Matthews, 2015; Menning, 2007), while transitions such as divorce, separation, and the formation of new partnerships seem unexpected, even though they have also become more prevalent (Bildtgård & Öberg, 2017; Brown & Lin, 2012). Chrononormativity refers to this temporal dimension of expectations, which normatively frame certain life phases. Accordingly, this concept describes how the experience of a life course transition can normatively happen at the 'right' or the 'wrong' time (Freeman, 2010). Similar to "early motherhood" referring to motherhood in youth in contrast to motherhood in middle age (Furstenberg, 2005), we know terms such as "early widowhood" when spousal loss occurs in middle age (DiGiulio, 1992) and "gray divorce" for marital separations happening in later life (Brown & Lin, 2012). This indicates that the middle age is the unmarked temporal norm (van Dyk, 2017) for the transition of divorce, while it is the later life for widowhood. Accordingly, transitioning in other life phases appears as unexpected and non-normative (Rupprecht et al., 2022).

Individual responses to these chrononormative expectations can range from internalization to resistance (Rossow, 2012). A central concept in the field of gerontology are the individual perceptions of aging (PA). It describes how individuals "experience their personal aging process, the factors associated with the way in which they perceive their aging, and, finally, how their perceptions of the personal aging process relate to indicators of subjective well-being" (Steverink et al., 2001, p. 370).

Partnership transitions are strongly related to crucial life domains such as health (e.g., Djundeva, 2018; Yu et al., 2019), well-being (e.g., Amato, 2000; Gloor et al., 2021; Leopold, 2018), and social participation (e.g., Eckhard, 2021). The same life domains have been also found to be associated with PA (e.g., Demakakos et al., 2007; Shmerlina, 2015; Westerhof & Barrett, 2005; Westerhof et al., 2014). Although both, the partnership transitions and PA are presumed to impact central spheres in later life, their relationship remains ambiguous. However, with reference to the concept of chrononormativity, we theoretically assume that individuals experiencing chrononormative transitions affirm age-specific ascriptions (i.e., more loss-related perceptions in older age), while we expect individuals with non-chrononormative transitions to refuse age-specific ascriptions and to affirm non-age-specific ascriptions (i.e., more gain-related perceptions associated with youth).

While the findings from other countries on the association of partnerships and PA have been contradictory (Barrett, 2005; Bergland et al., 2013; Bordone et al., 2020; Logan et al., 1992; Schafer & Shippee, 2010; Turner et al., 2023; Zihan & Post, 2020), there has been little explicit discussion about this issue in the German context (cf. Jung et al., 2021; Kaspar et al., 2022; Rupprecht et al., 2022). Thus, the question of whether and how partnership-related transitions are related to the development of PA in later life remains open. Our study aims to fill this research gap by investigating this relationship. Therefore, we examine *how the individual perceptions of aging differ by partnership status, and how they develop as people transition to widowhood, experience a divorce or separation, and enter new partnerships in later life.*

Many previous studies on this topic were based on cross-sectional data (Barrett 2005; Bordone et al., 2020; Logan et al., 1992; Rupprecht et al., 2022). Additionally, both the conceptualization (subjective age vs. (self-)perceptions of aging) and the operationalization of PA can vary. A lot of studies have used unidimensional measurements based on a single-item question (e.g., "Do you feel old?", Bordone et al., 2020, p. 1675; cf. Logan et al., 1992), or on the difference between chronological and subjective age (Barrett 2005; Barrett & Gumber, 2020; Bergland et al., 2013; Schafer & Shippee, 2010; Zihan & Post, 2020). However, neglecting its multidimensionality can lead to misunderstanding of the perceptions of aging (Kotter-Grühn et al., 2016, p. 89).

Like other recent studies (cf. Kaspar et al., 2022; Jung et al., 2021; Turner et al., 2023), we seek to overcome the drawbacks of previous research and contribute to the current literature in the following ways. First, we use longitudinal panel data and apply hybrid regression models to examine different marital and non-marital partnership characteristics. We include them not only as a status, but also as a transition. Second, we theoretically link perceptions of aging with partnership transitions such as widowhood, divorce, separation, and repartnering using the concept of chrononormativity (Freeman, 2010). Third, we measure PA multidimensionally via an index and multiple single variables. To do so, we draw on data from two major German aging studies: the German Ageing Survey and the NRW80+ study. Using both surveys allows us to base our analyses on two different data sources, to cover a wide age range from older adulthood

to very old age, and to match different measurements of PA. Hence, our study aims to provide new insights into the ongoing debate on the association of later life partnership transitions and PA for Germany.

2. The German context

In Germany, the share of the older and oldest old population is continuously increasing. In 2021, the share of people aged 67 years and older was 19% and the share of people aged 80 years and older was 7%. By 2040, one quarter of the German population will be aged 67 years and older and nearly every tenth person will be older than 80 years (DESTATIS, 2022a). Up to the age of 57 years, there is a surplus of men in the German population. Because of the longer life expectancy of women, the gender ratio switches in the population aged 60 years and older and there is a slight surplus of women. In the population aged above 80 years, the share of women is as high as 62% (DESTATIS, 2021).

The marriage is an important societal institution in Germany, which is protected by civil laws (§1353ff, §1564ff German Civil Code, BGB) and the German constitution (Art. 6 GG). It provides economic benefits such as tax advantages ("Ehegattensplitting") or pension entitlements and mutual obligations regarding social security or liabilities (Nave-Herz, 2022). Therefore, partnership transitions out of marriage might be of major relevance in the German context.

The average age at first marriage has increased since the last century. While the average age in 1913 was 25 years for women and 28 years for men (Rothenbacher & Fertig, 2015), in 2021 it was 32 years for women and 35 years for men (DESTATIS, 2022b). The average age for the transition of divorce was 44 years for women and 47 years for men (DESTATIS, 2022c). However, more than 70% of the marriages were ended by the death of a spouse (DESTATIS, 2021). The average age at widowhood was 74 years for women and 77 years for men in the same year (Deutsche Rentenversicherung, 2022).

Accordingly, for the population aged between 65 and 80 years, the most important marital status is to be married. While around 80% of men in this age group are married, the share of married women decreases from 67% at an age of 65 years to 48% at an age of 80 years. In the population aged 80 years and older, the majority of men is still married, while the majority of women in this age group is widowed (DESTATIS, 2016). Beside the different life expectancy, a reason for these gender differences can be found in the prevailing gender norms regarding age gaps between spouses. Women are on average three years younger than their male partners (Lengerer, 2016, p. 22). The share of divorced individuals decreases from around 10% at an age of 65 years to below 5% for the population aged over 85 years for both, men and women (DESTATIS, 2016).

The gender ratio and the different availability of single[1] men and women result in unbalanced partner markets for heterosexual individuals in older age. A big number of single women faces a little number of single men, which benefits the repartnering chances of men (Eckhard et al., 2015).

3. Previous research

Many previous studies conducted in Europe and the US have examined factors that may be associated with PA. In particular, a lower formal education or economic status (Shmerlina, 2015), the transition to retirement (Bordone et al., 2020; Schafer & Shippee, 2010), an older chronological age (Kaufman & Elder, 2003; Logan et al., 1992; Shmerlina, 2015), and a worse health condition (Barrett, 2005; Barret & Gumber, 2020; Bergland et al., 2013; Kaufman & Elder, 2003; Logan et al., 1992; Schafer & Shippee, 2010) can contribute to a higher subjective age.

The research findings on the association of gender and PA are inconsistent. For example, a study on older individuals from the US found that women are more likely than men to feel younger than their chronological age (Logan et al., 1992). After controlling for health, work, and family characteristics, this finding is supported by another US study (Barrett 2005). However, a more recent Italian study indicates gender differences in the opposite direction (Bordone et al., 2020).

[1] In this paper, the terms "singlehood" and "single" refer to individuals who do not have any kind of romantic relationship; meaning that these terms do not include non-marital nor LAT partnerships.

Findings on the relationship of children and PA are contradictory as well. There is a negative association of having children and PA (Logan et al., 1992), and this association increases with the number of children (Kaufman & Elder, 2003). However, Barret (2005) found that the number of children is linked to more positive PA. Individuals who become grandparents at an early age report a higher subjective age than those who become grandparents at an average age, while individuals who enjoy being a grandparent feel younger than those who do not enjoy this role (Kaufman & Elder, 2003).

The research findings on the associations of partnerships and PA are also conflicting. A study conducted in the US found that being married is linked to younger PA (Logan et al., 1992). However, more recent studies suggest that having a partner is associated with a higher subjective age (Barrett, 2005; Zihan & Post, 2020). Based on data from the German Ageing Survey, Jung et al. (2021) showed for individuals aged between 40 and 85 that having a partner has a protective effect on a positive aging perception only in terms of its social dimension. Moreover, a Norwegian study found no relationship of being married or cohabiting on the subjective age of individuals aged 60 or older (Bergland et al., 2013).

With retrospective data from the Innovation Sample of the German Socio-Economic Panel, Rupprecht et al. (2022) identified for individuals aged between 16 and 93 that the start and the end of partnerships are linked to a higher awareness of age-related gains. This contrasts to deaths in the family, which are not associated with age-related awareness. Additionally, they found that while "early and age-corresponding family life events" (Rupprecht et al., 2022, p. 9) are related to a higher awareness of gains, non-normatively late events are associated with a lower awareness of losses. Research conducted with retrospective data from Italy indicates that women report the event of widowhood as event when they felt old more frequently than men (Bordone et al., 2020).

A very recent study from the US revealed that not marital status is associated with PA but marital transitions (Turner et al., 2023). Among adults aged 50 and older, spousal loss is associated with less positive PA, while repartnering is related to less negative perceptions compared to remaining married. They found no differences in positive PA between individuals who transitioned to widowhood and individuals who transitioned to divorce, whereas the widowed individuals show less negative PA than the divorced (Turner et al., 2023, p. 379). Another longitudinal US study found, however, that neither the transition to widowhood nor the transition to divorce affect the subjective age of respondents aged between 25 and 74 (Schafer & Shippee, 2010). Using data from the NRW80+ panel study for Germany, Kaspar et al. (2022) also did not find a stable effect of spousal loss on the perception of age-related changes.

To conclude, there are ambiguous findings on the relationship of partnership transitions and PA from international studies. For Germany, the few studies on this topic find only weak associations. We focus on the older and oldest old population and contribute to previous studies as follows: a) we use prospective longitudinal panel data of two major German aging studies, b) we include different marital and non-marital states and transitions as key independent variables and c) we analyze multiple dimensions of PA.

4. Theoretical background and hypotheses

4.1 Chrononormative expectations in later life

We understand older age as a socially constructed and institutionally framed life phase, which is – as any other life phase – highly associated with historically evolved and culturally contingent chrononorms (Featherstone & Hepworth, 1993; Gildemeister, 2008; Kohli, 2007; Rossow, 2012; van Dyk, 2017). Chrononorms structure the temporal sequencing of individual life courses. There are chrononormative expectations on age-appropriateness in different life phases and on both, the 'right' and the 'wrong' time for certain life course transitions (Freeman, 2010; Kohli, 2007; Lahad, 2016). Chrononormative expectations become apparent in e.g. age-specific stereotypes, which in turn refer to the norms of a life phase (Lahad, 2016). Older age is broadly related to negative and devaluing stereotypes, which link it to terms such as bodily decline, frailty, loss, and dependency (Buchen & Maier, 2008; Gildemeister, 2008; van Dyk, 2017; van Dyk & Lessenich, 2009).

From a sociological perspective, we can assume that individuals who are getting older themselves can response affirmatively or aversely to the described chrononormative expectations regarding older age (Featherstone & Hepworth, 1993; Gildemeister, 2008; Rossow, 2012). The concept of PA identifies how

individuals evaluate and experience their own aging process in gain- and loss-related dimensions (Diehl et al., 2021; Steverink et al., 2001). Unlike the unidimensional subjective age, PA allow to grasp individual attitudes towards aging multidimensionally (Bai, 2014). These multiple dimensions cover different aspects of be(com)ing older in various life spheres. Gain-related dimensions refer to age-specific processes that people experience as beneficial, like becoming wiser or gaining freedom in everyday life. By contrast, loss-related dimensions refer to age-specific processes that people experience as a worsening of certain aspects of life, such as seeing their cognitive capacity or physical abilities decline.

4.2 Chrononormativity of partnership transitions in later life

Chrononormative expectations regarding later life also manifest themselves in age-specific partnership norms and practices (Barrett, 2005; Coupland, 2000; Sears-Roberts Alterovitz & Mendelsohn, 2009). Positively connoted partnership practices, like falling in love or being sexually active, are chrononormatively linked to youth (Casado-Gual, 2020; Fileborn et al., 2015); while partnerships in older age are often associated with losses rather than with gains, such as caregiving, loneliness or widowhood (Gildemeister, 2008; Hockey et al., 2001). Furthermore, sexuality and dating are not only closely associated with youth, but they are also specifically devalued in combination with older age, e.g., by assuming that sexuality declines with increasing age (Bamler, 2008; Degele, 2008). Similar to individual responses to chrononormative expectations of older age, we can assume that age-specific partnership norms can be internalized or refused by older people (Clarke & Griffin, 2008; Rossow, 2012).

We use the concept of chrononormativity to link different partnership transitions with PA. We assume that if an individual experiences a partnership transition at the chrononormatively 'right' life phase, age-specific expectations and attitudes regarding this life phase are affirmed. In later life, this applies to the prevailing negative attitudes towards aging. If partnership transitions happen in the chrononormatively 'wrong' phase of life instead, we expect an aversive response to chrononormative expectations.

The transition to widowhood can be understood as a chrononormative partnership transition in older age: the 'right time' for this transition is located in later life, since "[w]idow and widower are prevalent social identities among older adults" (Hockey et al., 2001, p. 741), and widowhood is empirically more frequent in older age (Menning, 2007). Therefore, we assume that widowed individuals affirm negative chrononormative expectations of later life:

H 1.1 Compared to married individuals, widowed individuals have more negative PA in later life.

H 1.2 After individuals transition to widowhood in later life, their PA worsen.

Other possible transitions to singlehood are divorce or separation. In contrast to widowhood, these transitions can be categorized as non-chrononormative in later life as they are expected to occur rather in middle than in older age (Brown & Lin, 2012; Martin-Matthews, 2015). Another important distinction is that while divorce or separation is intended by at least one partner, widowhood happens mostly unintendedly (Lenz, 2009). Linking this to chrononormativity, we assume that divorce and separation are deviations from chrononormative expectations when they occur in later life instead of in middle age. Thus, divorce or separation in this life phase could lead to a dismissal of the negative chrononormative expectations of older age. In contrast to widowhood, we assume for divorce and separation:

H 2.1 Compared to partnered individuals, divorced or separated individuals have more positive PA in later life.

H 2.2 After individuals divorce or separate in later life, their PA improve.

The timing of the formation of new partnerships is chrononormatively located in younger ages (Bai, 2014; Fileborn et al., 2015; Watson & Stelle, 2011). If older people internalize the dismissive age-specific norms on sexuality and partnerships, they will be more likely to fulfil the expectation to stay single in older age (Carpenter et al., 2006; Fileborn et al., 2015; Kasif & Band-Winterstein, 2015). Accordingly, we understand repartnering as a non-chrononormative partnership transition in later life (De Jong Gierveld, 2002; Koren, 2016; Watson & Stelle, 2011). Similar to divorce and separation, we assume that older repartnered individuals refuse negative chrononormative expectations of later life:

H 3.1 Compared to singles, repartnered individuals have more positive PA in later life.

H 3.2 After individuals enter a new partnership in later life, their PA improve.

As shown for the German context, aging is a strongly gendered life phase. Although men and women are confronted with similar negative stereotypes and challenges in older age, they face gender-specific expectations in single spheres of aging. While women could experience especially a decline of physical

attractiveness as loss-related, men could suffer from decreasing status by retirement (Gildemeister, 2008). These gendered differences are also relevant for the partner market chances in later life and in turn for partnership transitions (Koren, 2016; Watson & Stelle, 2011). Thus, we hypothesize for gender and partnership transitions:

H 4 There are gender differences in the different dimensions of PA.

H 5 Partnership transitions have a different influence on PA for women than for men.

However, partnership transitions might affect single spheres of PA differently. With the transition to singlehood, individuals might have more free time than they had during the partnership. This can be experienced as gain-related, in the sense of having more time for themselves and the things they want to do. However, the additional time can also be experienced as loss-related when they feel lonely or grieve the time formerly spent with the partner (for different patterns of adaption to spousal loss, see Spahni et al., 2015). Similarly, when individuals repartner they might get support from their new partner in everyday life, which could be experienced as gain, but also as a loss of independence (Funk & Kobayashi, 2016).

5. Data and methods

5.1 Data and sample

For this study, we use data from two representative German panel studies: the German Ageing Survey (DEAS) (Klaus et al., 2017), and the "Quality of Life and Subjective Well-Being of the Very Old in North Rhine-Westphalia" (NRW80+) survey (Albrecht et al., 2022; Hansen et al., 2021).

The DEAS is a population-representative panel study focusing on the second half of life (over age 40), which has been carried out by the German Centre of Gerontology since 1996. The survey is conducted in person, both verbally (CAPI and PAPI) and in writing (drop-off). The mean response rate of the panel study is 66%. The survey modules include information on the life course, family relations, and aging. The first six waves cover an observation period of 22 years (1996, 2002, 2008, 2011, 2014, 2017) with a baseline sample of 20,715 respondents (see appendix: Tab. A.1a for baseline sample description).

The NRW80+ study contains unique information on the population aged 80 years and older from the most populated German state, North Rhine-Westphalia. The survey was conducted by the Cologne Center for Ethics, Rights, Economics, and Social Sciences of Health (ceres). Using CAPI, the two survey waves were collected in 2017/18 (baseline sample, n = 1,863) and 2019/20 (follow-up sample, n = 912) with a panel mortality rate of 51% (see appendix: Tab. A.1b for baseline sample description). In addition to individuals living in private households, the panel sample also includes residents of care facilities. Moreover, information was collected through proxy interviews with relatives or caregivers if the respondents were unable to participate in the survey due to health or other reasons.

Both datasets provide recent, representative information on people's living conditions in later life. The linkage of the data from DEAS and NRW80+ contributes to analyze our research question for three reasons. First, combining data from two major aging surveys enables us to study a wider range of ages in later adulthood, and to investigate a higher number of partnership transitions. Second, the two surveys collect similar information on PA, which is of central interest to this study. Even though the scales used in the two data sets do not measure an identical construct, we consider these multidimensional measurements (i.e., via index and for multiple single dimensions) superior to unidimensional measures, because they allow us to distinguish different spheres of PA (e.g., vitality or the dependency of others; cf. Diehl et al., 2021; Jung et al., 2021). Third, the panel design of the two studies enables us to perform a longitudinal analysis of partnership transitions, instead of simply comparing different partnership states (cf. Giesselmann & Windzio, 2012).

For our samples (see appendix: Tab. A.2), we excluded non-retired respondents, since PA change considerably during the transition to retirement (DEAS: 9,586, NRW80+: 5).[2] Additionally, we excluded participants who were never married, since we cannot control if they are in first or higher order partnerships (DEAS: 435, NRW80+: 60). Between the survey waves, no transitions to new marriages or divorces were observed in NRW80+. Due to data limitations, non-marital partnership transitions cannot be accounted for in NRW80+. Accordingly, divorce/separation and transitions to new (non-)marital partnerships can only be analyzed with the DEAS. Therefore, we excluded divorced respondents for NRW80+ (78). Because of the longitudinal design of our study, we excluded respondents from the sample who participated only in one wave (DEAS: 4,914, NRW80+: 875). Lastly, we excluded participants without valid information for marital status and partnership status (DEAS: 1,553).

The analytical samples for the transition to widowhood include participants who were either constantly married or widowed and who did experience the transition to widowhood within the observation period (sample I: DEAS: 3,683, NRW80+: 845).[3] The analytical samples for divorce/separation and for repartnering both consist of respondents who are constantly partnered or single and experience a transition of divorce/separation (sample II, DEAS: 3,848) respectively to a new partnership (sample III, DEAS: 3,832).

5.2 Measures

5.2.1 Perceptions of aging

PA are derived from the self-perceptions of aging scale (Steverink et al., 2001) in DEAS and the 10-item short form of the awareness of age-related change scale (AARC-10SF; Kaspar, Gabrian, et al., 2019) in NRW80+. The established scales classify different items as "age-related losses and gains" (Diehl et al., 2021, p. 2; see also Steverink et al., 2001). In order to compare the results from the data sets, we chose items measuring similar dimensions of PA (see Tab. 1). The variables we use are measured on four-point (DEAS) or five-point scales (NRW80+) ranging from strong agreement to strong disagreement. We recoded all items[4] so that lower values indicate more loss-related perceptions. We include PA as an index, and separately for different dimensions. The index was constructed by the mean of the seven variables separately for both data sets with lower values indicating more negative PA. The reliability of Cronbach's alpha is 0.65 (DEAS) and 0.68 (NRW80+).

5.2.2 Independent variables

The central independent variables are the marital status and the partnership status. In DEAS, we generated three dichotomous variables for each transition. For the analysis of widowhood, the variable indicates whether an individual is married or single after widowhood. For the analysis of divorce, the variable indicates whether an individual is married or single after divorce/separation. For the analysis of repartnering, the variable indicates whether an individual is single or in a (formal or informal) partnership. In NRW80+, the dichotomous variable on marital status indicates whether an individual is married or widowed.

The information on gender was collected directly in DEAS and was taken from the registration office data in NRW80+. We generated interaction terms of gender and marital/partnership status to analyze gender-specific effects of the different partnership transitions.

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[2] We excluded respondents who were still working for two reasons. Research has shown that retirement has a major effect on PA (Bordone et al., 2020; Schafer & Shippee, 2010; Zihan & Post, 2020). Moreover, it can be assumed that the timing of widowhood or repartnering can be crucial for PA, since it is chrononormatively different if individuals are, for example, widowed at age 50 or at age 70 (Turner et al., 2023). Reducing the sample to retirees contributed to ensure that the respondents were in a comparable age-specific phase.

[3] We restricted our analyses to the death of spouses (in contrast to non-marital partners), because the sample size of deceased non-marital partners was very small in the DEAS data (n=4) and was not observable with the NRW80+ data. We excluded these four respondents from the DEAS sample.

[4] We recoded freedom, needs, cognitive capacity, and serenity in DEAS and adaption, cognitive capacity, dependency, and vitality in NRW80+.

Table 1: Measurement of PA for DEAS and NRW80+

DEAS	NRW80+	Coding	
Aging means to me that I...	How much do you realize with increasing age that...		
... can still put my ideas into practice.	...you have more freedom to live your days the way you want?	Freedom	Gain
... have a better idea of what I want.	...you have a better sense of what is important to you?	Needs	Gain
... cannot take as much on as before.	...you have to limit your activities?	Adaption	Loss
... can still learn new things.	...your mental capacity is declining?	Cognitive capacity	Gain/ Loss
... cannot make up for my physical losses.	...you feel more dependent on the help of others?	Dependency	Loss
... am less energetic and fit.	...you have less energy?	Vitality	Loss
... know myself better.	...you have more experiences and knowledge to evaluate things and people?	Serenity	Gain

Note: For the German original wording of the items see Engstler et al. (2019) for DEAS and Kaspar, Geithner, et al. (2019) for NRW80+ (see also Kaspar, Gabrian, et al., 2019).

5.2.3 Covariates

To control for confounding effects, we added covariates that previous studies have identified to be associated with PA (cf. Barrett, 2005; Barret & Gumber, 2020; Bordone et al., 2020; Kaufman & Elder, 2003; Logan et al., 1992; Shmerlina, 2015; Turner et al., 2023). The age at the time of the interview was recorded directly in DEAS and was taken from the registration office data in NRW80+. Educational attainment was based on the ISCED classification and recoded to a three-level scale from "low" to "high" in both data sets. Respondents who stated that they were born outside the territory of the present Federal Republic of Germany and moved to Germany after 1950 were categorized as having a migration experience (Engstler et al., 2019). The physical health was measured by the number of diseases. Respondents could indicate up to 12 (DEAS) respectively 19 diseases (NRW80+) from a given list, e.g., hypertension, diabetes, or arthrosis. If respondents reported having at least one grandchild, they were classified as grandparents. The network size was scaled metrically from zero up to nine or more network members.

5.3 Method

One of the major advantages of longitudinal panel data is the possibility to analyze not only inter-individual differences (between individuals), but also intra-individual developments (within individuals). For the former, random effects (RE) and for the latter, fixed effects (FE) estimators can be modelled within panel regressions. The use of RE estimators does, however, create problems because time-constant (as well as time-varying) unobserved heterogeneity cannot be controlled for, and they often violate the assumptions of independent error terms and a constant variance of the person-specific and idiosyncratic error term (Brüderl, 2010; Wooldridge, 2009). Therefore, RE estimators are often rejected in favor of FE estimators (Brüderl, 2010).

In the present study, we decided to use linear hybrid panel regression models as they can at least partially compensate for the weaknesses of pure RE models (Brüderl, 2010; Giesselmann & Windzio, 2012). Hybrid regression models estimate both FE and RE and time-varying variables enter the analysis both as "mean-adjusted (within-transformation) and as person means (between-transformation)" (Brüderl, 2010, p. 976; see also Giesselmann & Windzio, 2012; Wooldridge, 2009). This implies, for example, that the partnership status is evaluated both on a group-comparative basis (differences between different partnership states) and as an individual transition (changing from one partnership status to another).

We decided to use this method for the following reasons: (1) Our hypotheses specifically differentiate between an inter-individual and an intra-individual level, which can be observed together in one hybrid model. (2) The ability to compare between effects and within effects enables us to detect differences in short-term and long-term effects of partnership transitions on PA. (3) We can account for the multidimensionality of aging by focusing on inter-individual differences as well as intra-individual

processes in PA. (4) The effect of gender – which is time-constant and cannot be included in FE models – is pivotal when observing heterosexual partnerships in general, and especially in older age. In order to check for the robustness of our estimates, we additionally performed FE regression models (see appendix: Tab. A.3a-A.5b).[5]

Table 2a: Sample characteristics DEAS: mean (sd) / percentage

	Analytical sample	Constantly partnered	Constantly married	Constantly single	Constantly widowed, single	Recently widowed	Recently divorced/ separated	Recently repartnered	min	max	n
Index PA	1.7 (0.4)	1.7 (0.4)	1.7 (0.4)	1.7 (0.4)	1.7 (0.4)	1.7 (0.4)	1.8 (0.4)	1.9 (0.4)	0	3	2,794
Freedom	2.0 (0.8)	2.1 (0.8)	2.1 (0.8)	1.9 (0.9)	1.9 (0.9)	2.9 (0.8)	2.1 (0.8)	2.3 (0.7)	0	3	2,747
Needs	2.1 (0.8)	2.0 (0.8)	2.0 (0.8)	2.2 (0.8)	2.3 (0.8)	2.1 (0.8)	2.1 (0.7)	2.3 (0.8)	0	3	2,748
Adaption	1.0 (0.7)	1.0 (0.7)	1.0 (0.7)	0.9 (0.7)	0.9 (0.7)	1.0 (0.7)	1.2 (0.7)	1.1 (0.6)	0	3	2,756
Cognitive capacities	2.0 (0.7)	2.0 (0.7)	1.9 (0.7)	2.0 (0.8)	1.9 (0.8)	2.0 (0.7)	2.1 (0.7)	2.2 (0.6)	0	3	2,761
Dependency	1.3 (0.7)	1.4 (0.7)	1.3 (0.7)	1.3 (0.8)	1.3 (0.8)	1.3 (0.8)	1.5 (0.7)	1.5 (0.7)	0	3	2,750
Vitality	1.2 (0.8)	1.3 (0.8)	1.3 (0.8)	1.2 (0.8)	1.1 (0.8)	1.2 (0.8)	1.5 (0.8)	1.4 (0.8)	0	3	2,751
Serenity	2.3 (0.7)	2.2 (0.7)	2.2 (0.7)	2.3 (0.7)	2.3 (1.9)	2.4 (0.6)	2.3 (1.7)	2.5 (0.5)	0	3	2,759
Partnership status											3,217
Married, living together	75.7	94.8	100			100	23.3	17.9			
Divorced/ separated, single	5.4						5.0	21.5			
Widowed, single	13.8				100		6.7	57.1			
Divorced/ separated, partnered	2.5	3.5		28.0			21.2	1.8			
Widowed, partnered	2.5	2.7		72.0			43.3	1.8			
Age	70.7 (5.5)	70.2 (5.2)	70.2 (5.2)	72.6 (5.9)	73.7 (6.0)	71.2 (5.6)	69.6 (6.0)	71.0 (6.1)	60	85	3,218
... at widowhood	61.5 (11.6)	55.5 (10.6)		62.3 (11.5)	62.3 (11.5)			63.8 (11.6)	20	85	526
... at divorce/ separation	52.2 (13.1)	48.0 (10.4)		53.3 (14.0)			51.5 (11.1)	63.1 (9.6)	21	80	236
... at formation of partnership	29.7 (11.9)	29.5 (11.6)	28.0 (9.6)			27.6 (9.4)	53.3 (16.2)	31.8 (13.5)	15	83	2,573
Gender											4,227
Men	56.5	65.7	66.1	25.1	24.0	42.6	52.9	64.8			
Women	43.5	34.4	33.9	74.9	76.0	57.4	47.1	35.2			
Educational attainment											4,227
Low	8.7	6.6	6.8	15.6	17.6	11.5	6.9	12.7			
Medium	51.6	49.9	50.0	55.9	58.6	58.9	50.6	45.1			
High	39.7	43.4	42.2	28.5	23.8	29.6	42.5	42.3			
Migration experience											4,187
Yes	5.0	4.6	4.7	6.5	6.1	5.9	4.6	1.4			
No	95.0	95.4	95.3	93.5	93.9	94.1	95.4	98.6			
Physical health	2.9 (1.8)	2.9 (1.8)	2.9 (1.8)	3.1 (1.8)	3.2 (1.9)	3.1 (1.9)	2.6 (1.7)	2.7 (1.7)	0	11	2,711
Grandparenthood											3,218
Yes	79.9	79.7	79.7	79.9	81.8	82.0	78.3	78.6			
No	20.1	20.3	20.3	20.1	18.2	18.0	21.7	21.4			
Network size	4.8 (2.7)	4.9 (2.7)	5.0 (2.7)	4.4 (2.6)	4.3 (2.5)	5.0 (2.7)	5.0 (2.6)	5.5 (2.6)	0	9	3,149
Obs	3.1 (1.2)	3.1 (1.2)	3.1 (9.6)	3.0 (1.2)	2.9 (1.1)	3.6 (1.2)	3.7 (1.2)	3.5 (1.3)			4,227
n	4,227	3,020	2,852	741	500	331	87	71	2	6	4,227
N	25,362	18,120	17,112	4,446	3,000	1,986	522	426			

Source: DEAS, wave 1-6. *Note:* The values for time varying variables refer to the first observation of each individual. Obs = average number of observations per individual. n = number of individuals. N = number of observations

[5] Apart from some smaller differences, the results from the main analyses are in line with the estimates of the robustness check.

6. Results

6.1 Descriptive Findings

We analytically distinguish seven groups (see Tab. 2a for DEAS and Tab. 2b for NRW80+): individuals who 1) constantly have a (non-)marital partner (only DEAS: 3,020), 2) are constantly married (DEAS: 2,852, NRW80+: 330), 3) are constantly single (only DEAS: 741), 4) are constantly widowed (DEAS: 500, NRW80+: 472), and individuals who experience a partnership transition within the observation period: 5) widowhood (DEAS: 331, NRW80+: 43), 6) divorce/separation (only DEAS: 87) or 7) repartnering (only DEAS: 71).

All respondents were between ages 60 and 85 in DEAS (mean: age 71), and between ages 80 and 102 in NRW80+ (mean: age 86) at first observation. In both samples, the constantly widowed are the oldest group (DEAS: 74, NRW80+: 87). The youngest groups are the constantly married in NRW80+ (84) and the recently divorced/separated in DEAS (70). While most of the constantly married or partnered are men, more than two-thirds of the constantly widowed and constantly singles are women. Of the recently widowed, 57% are women in DEAS, while nearly two-thirds are men in NRW80+. Similarly, 53% of the recently divorced/separated and 65% of the recently repartnered are men.

In DEAS, overall PA are distributed at a similar level among the different subgroups. Only the divorced/separated and the repartnered have slightly higher values, indicating more positive experiences of aging. In NRW80+, the recently widowed have slightly lower values and thus more negative overall PA than the constantly married.

Table 2b: Sample characteristics NRW80+: mean (sd) / percentage

	Analytical sample	Constantly married	Constantly widowed	Recently widowed	min	max	n
Index PA	2.2 (0.7)	2.3 (0.7)	2.2 (0.7)	2.1 (0.7)	0	4	840
Freedom	2.4 (1.2)	2.4 (1.2)	2.5 (1.2)	1.9 (1.4)	0	4	824
Needs	2.3 (1.1)	2.4 (1.1)	2.3 (1.1)	2.2 (1.3)	0	4	821
Adaption	1.7 (1.3)	1.7 (1.2)	1.7 (1.3)	1.7 (1.3)	0	4	837
Cognitive capacity	2.7 (1.1)	2.7 (1.1)	2.7 (1.1)	2.7 (1.1)	0	4	840
Dependency	2.6 (1.4)	2.9 (1.3)	2.3 (1.4)	2.4 (1.3)	0	4	839
Vitality	1.8 (1.2)	1.8 (1.1)	1.8 (1.2)	1.8 (1.3)	0	4	838
Serenity	2.3 (1.1)	2.3 (1.1)	2.2 (1.2)	2.3 (1.3)	0	4	804
Marital status							845
Married	44.1						
Widowed	55.9						
Age	85.8 (4.2)	84.3 (3.6)	87.0 (4.3)	84.9 (4.1)	80	102	842
... at widowhood	72.2 (12.6)				24	92	465
Gender							845
Men	51.2	74.9	33.5	65.1			
Women	48.8	25.2	66.5	34.9			
Educational attainment							824
Low	23.9	11.8	33.6	11.6			
Medium	52.8	55.1	50.6	58.1			
High	23.3	33.1	15.7	30.2			
Migration experience							845
Yes	21.9	21.2	22.0	25.6			
No	78.1	78.9	78.0	74.4			
Physical health	3.4 (2.3)	3.4 (2.2)	3.5 (2.4)	3.2 (2.1)	0	12	838
Grandparenthood							840
Yes	78.2	81.5	76.7	69.8			
No	21.8	18.5	23.3	30.2			
Network size	5.5 (3.0)	6.3 (3.0)	5.0 (3.0)	5.2 (2.7)	0	9	827
Obs	2	2	2	2	2	2	
n	845	330	472	43			
N	1,690	660	944	86			

Source: NRW80+, wave 1-2. *Note:* The values for time varying variables refer to the first observation of each individual. Obs = average number of observations per individual. n = number of individuals. N = number of observations

6.2 *Widowhood*

6.2.1 DEAS

Tables 3a and 3b show the hybrid models for the effects of widowhood on PA for the DEAS sample I. Regarding the differences in PA between widowed and married individuals, we find no significant differences for the index (1a-4a). The effects for the single items on freedom (1b, 2b), adaption (1d-3d), dependency (2f), and vitality (1g-3g) indicate that widowed individuals have more negative PA than married individuals. However, in the full models these differences do not remain significant (4b, 4d, 4f, 4g). Contrarily, for the single items on needs (1c, 2c) and serenity (1h-3h), widowed individuals have significantly more positive PA than married individuals. This effect does not remain significant for needs after adding covariates (4c). For serenity, the effect is significant in the full model (4h). Thus, widowed individuals feel like they know themselves better than married individuals. However, based on the results from the index, we find no support for the assumption that widowed individuals have more negative PA than married individuals. Accordingly, we have to reject hypothesis 1.1.

For gender differences, the effects in the full models for PA (4a), needs (4c), and cognitive capacity (4e) show that women have more positive PA than men. Therefore, hypothesis 4 can be confirmed since there are gender differences in PA.

Analyzing intra-individual developments, we find that the PA worsen slightly but significantly when individuals become widowed (1a-3a). However, if control variables are considered, the effect does not remain significant (4a). In the full models, the single items indicate that the perceptions towards freedom, needs, adaption, vitality, and serenity become more positive (significantly only for freedom and adaption, 4b-4d, 4g, 4h), while the perceptions concerning cognitive capacity, and dependency become more negative after experiencing widowhood (however, not significantly, 4e, 4f). This indicates that the transition to widowhood increases the perceptions that individuals can still put their ideas into practice and can take on as much as when they were younger. Based on the non-significant effects in most of the full models, hypothesis 1.2 cannot be confirmed. Thus, we find that experiencing widowhood does not affect overall PA.

For the interaction term between gender and marital status, we find neither inter- nor intra-individual effects in the full models. Accordingly, hypothesis 5 has to be rejected.

6.2.2 NRW80+

Tables 3c and 3d show the results of the hybrid models for the NRW80+ sample. In terms of inter-individual differences, widowed individuals have significantly more negative PA than married individuals in the overall index (1a). However, this effect does not remain significant when we add control variables (4a). We detect a stable association for the dimension of dependency: widowed individuals tend to feel more dependent on the help of others than their married counterparts. This group difference remains significant in all models (1f-4f). A contradictory effect is found for the dimension of adaption which is also significant after adding control variables. Widowed individuals have a more positive PA in the sense of less limitations in activities than married individuals (4d). Taken together, our hypothesis 1.1 on the group differences in PA between widowed and married individuals only holds for dependency. Therefore, we have to reject this hypothesis for the NRW80+ sample as well: i.e., overall, widowed individuals do not show significantly different PA than their married counterparts.

Additionally, women show significantly more negative PA than men (2a). However, this effect does not remain stable after adding control variables (4a). In contrast to the overall PA, we find stable associations of gender and the dimensions of freedom (2b-4b) and dependency (4f). Women tend to feel less free to spend their time as they want and to feel more dependent on others than men. For freedom, there is also a stable interaction effect. The more negative PA for women are attenuated by the transition to widowhood: though women feel less free in the division of their time, widowed women tend to feel freer than married women (3b, 4b). Thus, our hypothesis on gender differences only holds for the dimensions of freedom and dependency. The hypothesized interaction effect of gender and marital status can only be found for the dimension of freedom. Accordingly, we have to reject hypotheses 4 and 5 in the overall consideration.

Table 3a: Hybrid models on the dimensions of PA by widowhood (DEAS)

	Index PA				Freedom				Needs				Adaption			
Model	1a	2a	3a	4a	1b	2b	3b	4b	1c	2c	3c	4c	1d	2d	3d	4d
Between effects																
Widowhood	-0.01	-0.06	-0.10	0.05	-0.15**	-0.15***	-0.16	0.01	0.25***	0.15***	0.17	0.18	-0.22***	-0.24***	-0.30**	-0.14
	(0.04)	(0.04)	(0.08)	(0.07)	(0.07)	(0.07)	(0.14)	(0.14)	(0.06)	(0.07)	(0.13)	(0.13)	(0.06)	(0.06)	(0.11)	(0.11)
Women		0.05***	0.05**	0.03**		-0.01	-0.00	-0.01		0.13***	0.13***	0.13***		0.02	0.02	-0.01
		(0.01)	(0.01)	(0.01)		(0.02)	(0.02)	(0.03)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Women X widowhood			0.06	-0.01			-0.02	-0.02			-0.02	-0.01			0.09	-0.01
			(0.09)	(0.09)			(0.02)	(0.16)			(0.15)	(0.15)			(0.13)	(0.13)
Age				-0.01***				-0.01***				-0.01***				-0.01***
				(0.00)				(0.00)				(0.00)				(0.00)
Educational attainment				0.03***				0.10***				0.00				-0.01
				(0.01)				(0.02)				(0.02)				(0.02)
Migration experience				-0.04				-0.07				0.05				-0.02
				(0.03)				(0.05)				(0.05)				(0.04)
Physical health				-0.06***				-0.06***				-0.01*				-0.09***
				(0.00)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.02				-0.01				0.01				-0.03
				(0.02)				(0.03)				(0.03)				(0.03)
Network size				0.01***				0.03***				-0.01				0.02***
				(0.00)				(0.01)				(0.00)				(0.00)
Within effects																
Widowhood	-0.08***	-0.07***	-0.07*	0.01	-0.13***	-0.13**	-0.05	0.13**	0.04	0.03	0.05	0.08	-0.02	-0.03	0.02	0.10**
	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)	(0.04)	(0.06)	(0.06)	(0.04)	(0.04)	(0.06)	(0.07)	(0.03)	(0.03)	(0.05)	(0.05)
Women X widowhood			-0.03	-0.00			-0.13*	-0.13			-0.03	-0.04			-0.08	-0.06
			(0.04)	(0.04)			(0.08)	(0.08)			(0.08)	(0.08)			(0.07)	(0.07)
Age				-0.01***				-0.03***				-0.00				-0.01***
				(0.00)				(0.00)				(0.00)				(0.00)
Physical health				-0.02***				-0.01				-0.01				-0.01*
				(0.00)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.01				0.01				-0.06				0.00
				(0.02)				(0.04)				(0.04)				(0.03)
Network size				0.00				0.01*				0.00				-0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Constant	1.69***	1.67***	1.67***	2.37***	2.00***	2.00***	2.00***	2.89***	2.05***	2.00***	2.00***	2.49***	1.02***	1.01***	1.01***	1.85***
	(0.01)	(0.01)	(0.01)	(0.09)	(0.01)	(0.01)	(0.01)	(0.16)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.13)
n	3,547	3,547	3,547	3,485	3,536	3,536	3,536	3,473	3,535	3,535	3,535	3,471	3,534	3,534	3,534	3,477
N	9,032	9,032	9,032	8,732	8,682	8,682	8,682	8,405	8.668	8.668	8.668	8,391	8,723	8,723	8,723	8,452

Source: DEAS (wave 1-6). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 3b: Hybrid models on the dimensions of PA by widowhood (DEAS)

	Cognitive capacity				Dependency				Vitality				Serenity			
Model	1e	2e	3e	4e	1f	2f	3f	4f	1g	2g	3g	4g	1h	2h	3h	4h
Between effects																
Widowhood	0.05	0.01	0.13	0.08	-0.09	-0.13**	-0.07	0.09	-0.14**	-0.19***	-0.26*	-0.01	0.20***	0.19***	0.27**	0.27**
	(0.06)	(0.06)	(0.01)	(0.12)	(0.06)	(0.06)	(0.12)	(0.12)	(0.07)	(0.07)	(0.13)	(0.13)	(0.05)	(0.06)	(0.11)	(0.11)
Women		0.05**	0.04	0.05**		0.04**	0.05**	0.02		0.06***	0.06**	0.02		0.01	-0.02	-0.01
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Women X widowhood			0.19	0.11			-0.08	-0.15			-0.10	-0.01			-0.11	0.11
			(0.14)	(0.14)			(0.15)	(0.14)			(0.16)	(0.15)			(0.13)	(0.13)
Age				-0.02***				-0.01***				-0.02***				0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Educational attainment				0.14***				-0.01				0.00				0.02
				(0.02)				(0.02)				(0.02)				(0.02)
Migration experience				-0.04				-0.04				-0.07				-0.06
				(0.05)				(0.05)				(0.05)				(0.04)
Physical health				-0.04***				-0.10***				-0.10***				-0.02***
				(0.01)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.11***				0.03				0.00				0.03
				(0.03)				(0.03)				(0.03)				(0.03)
Network size				0.02***				0.02***				0.02***				-0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Within effects																
Widowhood	-0.17***	-0.17***	-0.18***	-0.05	-0.12***	-0.13***	-0.16***	-0.09	-0.13**	-0.13**	-0.07	0.04	-0.01	-0.01	-0.02	0.01
	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)	(0.04)	(0.06)	(0.06)	(0.04)	(0.04)	(0.06)	(0.06)	(0.03)	(0.03)	(0.05)	(0.05)
Women X widowhood			0.01	0.03			0.06	0.07			-0.09	-0.06			0.00	0.02
			(0.07)	(0.07)			(0.07)	(0.08)			(0.08)	(0.08)			(0.07)	(0.07)
Age				-0.02***				-0.00*				-0.02***				-0.00**
				(0.00)				(0.00)				(0.00)				(0.00)
Physical health				-0.01**				-0.03***				-0.03***				-0.01*
				(0.01)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.02				-0.04				0.00				-0.03
				(0.03)				(0.04)				(0.04)				(0.03)
Network size				0.00				0.07*				0.00				0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Constant	1.93***	1.91***	1.92***	2.92***	1.34***	1.33***	1.33***	2.09***	1.23***	1.21***	1.21***	2.55***	2.24***	2.23***	2.23***	2.23***
	(0.01)	(0.01)	(0.01)	(0.14)	(0.01)	(0.01)	(0.01)	(0.14)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.13)
n	3,534	3,534	3,534	3,476	3,536	3,536	3,536	3,478	3,537	3,537	3,537	3,478	3,537	3,537	3,537	3,479
N	8,731	8,731	8,731	8,457	8,704	8,704	8,704	8,434	8,726	8,726	8,726	8,455	8,732	8,732	8,732	8,461

Source: DEAS (wave 1-6). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 3c: Hybrid models on the dimensions of PA by widowhood (NRW80+)

	Index PA				Freedom				Needs				Adaption			
Model	1a	2a	3a	4a	1b	2b	3b	4b	1c	2c	3c	4c	1d	2d	3d	4d
Between effects																
Widowhood	-0.13***	-0.09*	-0.09	0.03	-0.02	0.07	-0.06	0.05	-0.11	-0.08	-0.02	0.06	-0.05	-0.02	0.04	0.18*
	(0.05)	(0.05)	(0.07)	(0.06)	(0.08)	(0.08)	(0.11)	(0.11)	(0.07)	(0.07)	(0.10)	(0.10)	(0.08)	(0.09)	(0.11)	(0.11)
Women		-0.10**	-0.09	-0.11		-0.20***	-0.38***	-0.45***		-0.07	0.03	0.05		-0.08	0.02	-0.02
		(0.05)	(0.08)	(0.08)		(0.08)	(0.13)	(0.13)		(0.07)	(0.12)	(0.12)		(0.08)	(0.14)	(0.13)
Women X widowhood			-0.01	0.08			0.30*	0.35**			-0.16	-0.13			-0.15	-0.02
			(0.10)	(0.10)			(0.17)	(0.16)			(0.15)	(0.15)			(0.18)	(0.16)
Age				-0.04***				-0.04***				-0.02**				-0.05***
				(0.01)				(0.01)				(0.01)				(0.01)
Educational attainment				0.06*				-0.06				0.09				0.06
				(0.03)				(0.06)				(0.05)				(0.06)
Migration experience				-0.06				-0.01				-0.06				-0.09
				(0.05)				(0.09)				(0.08)				(0.09)
Physical health				-0.10***				-0.05***				-0.00				-0.20***
				(0.01)				(0.02)				(0.02)				(0.02)
Grandparenthood				-0.05				0.07				-0.08				-0.01
				(0.05)				(0.09)				(0.08)				(0.09)
Network size				0.03***				0.02*				0.03**				0.03*
				(0.01)				(0.01)				(0.01)				(0.01)
Within effects																
Widowhood	-0.22*	-0.22*	-0.13	0.15	0.52**	0.52**	0.24	0.59*	-0.22	-0.22	-0.05	0.08	-0.48**	-0.48**	-0.21	0.09
	(0.12)	(0.12)	(0.14)	(0.13)	(0.26)	(0.26)	(0.32)	(0.32)	(0.22)	(0.22)	(0.26)	(0.26)	(0.20)	(0.20)	(0.24)	(0.24)
Women X widowhood			-0.29	-0.26			0.89	0.93*			-0.59	-0.60			-0.88**	-0.87**
			(0.25)	(0.24)			(0.56)	(0.55)			(0.48)	(0.47)			(0.44)	(0.43)
Age				-0.13***				-0.17***				-0.07**				-0.13***
				(0.01)				(0.03)				(0.03)				(0.02)
Physical health				-0.03**				-0.04				0.01				-0.05**
				(0.01)				(0.03)				(0.02)				(0.02)
Grandparenthood				-0.57**				-0.91				-0.73				-0.29
				(0.26)				(0.62)				(0.50)				(0.46)
Network size				0.03***				0.00				0.04*				0.03**
				(0.01)				(0.02)				(0.02)				(0.02)
Constant	2.19***	2.22***	2.22***	5.45***	2.28***	2.33***	2.38***	5.76***	2.33***	2.35***	2.32***	3.55***	1.60***	1.62***	1.59***	6.74***
	(0.04)	(0.04)	(0.04)	(0.46)	(0.06)	(0.06)	(0.07)	(0.81)	(0.05)	(0.05)	(0.06)	(0.73)	(0.06)	(0.06)	(0.07)	(0.78)
n	814	814	814	814	804	804	804	804	809	809	809	809	812	812	812	812
N	1,533	1,533	1,533	1,533	1,486	1,486	1,486	1,486	1,489	1,489	1,489	1,489	1,529	1,529	1,529	1,529

Source: NRW80+ (wave 1-2). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 3d: Hybrid models on the dimensions of PA by widowhood (NRW80+)

	Cognitive capacity				Dependency				Vitality				Serenity			
Model	1e	2e	3e	4e	1f	2f	3f	4f	1g	2g	3g	4g	1h	2h	3h	4h
Between effects																
Widowhood	-0.04	-0.04	-0.10	0.03	-0.54***	-0.48***	-0.54***	-0.33***	-0.00	0.01	0.07	0.11	-0.04	0.05	0.11	0.16
	(0.07)	(0.08)	(0.10)	(0.10)	(0.09)	(0.10)	(0.13)	(0.12)	(0.07)	(0.08)	(0.11)	(0.10)	(0.07)	(0.08)	(0.10)	(0.10)
Women		0.00	-0.08	-0.05		-0.14	-0.23	-0.27*		-0.03	0.06	0.02		-0.18***	-0.07	-0.03
		(0.08)	(0.12)	(0.12)		(0.10)	(0.16)	(0.15)		(0.08)	(0.13)	(0.12)		(0.07)	(0.12)	(0.12)
Women X widowhood			0.13	0.21			0.15	0.30			-0.15	-0.05			-0.19	-0.15
			(0.16)	(0.15)			(0.20)	(0.19)			(0.16)	(0.15)			(0.16)	(0.16)
Age				-0.03***				-0.07***				-0.03***				-0.00
				(0.01)				(0.01)				(0.01)				(0.01)
Educational attainment				0.14**				0.09				-0.02				0.10*
				(0.06)				(0.07)				(0.06)				(0.06)
Migration experience				-0.12				0.01				-0.07				0.00
				(0.09)				(0.10)				(0.08)				(0.09)
Physical health				-0.05***				-0.20***				-0.18***				0.00
				(0.02)				(0.02)				(0.02)				(0.02)
Grandparenthood				-0.06				-0.01				-0.09				-0.12
				(0.08)				(0.10)				(0.08)				(0.09)
Network size				0.05***				0.04***				0.01				0.04***
				(0.01)				(0.02)				(0.01)				(0.01)
Within effects																
Widowhood	-0.34*	-0.34*	-0.27	-0.05	-0.50**	-0.49**	-0.39	0.03	-0.31	-0.31	-0.18	0.08	-0.24	-0.23	-0.07	0.18
	(0.19)	(0.19)	(0.23)	(0.23)	(0.22)	(0.22)	(0.27)	(0.26)	(0.21)	(0.21)	(0.25)	(0.25)	(0.22)	(0.22)	(0.27)	(0.27)
Women X widowhood			-0.23	-0.17			-0.33	-0.33			-0.42	-0.43			-0.49	-0.44
			(0.41)	(0.41)			(0.48)	(0.46)			(0.45)	(0.44)			(0.47)	(0.47)
Age				-0.11***				-0.19***				-0.11***				-0.13***
				(0.02)				(0.03)				(0.02)				(0.03)
Physical health				-0.05**				-0.03				-0.04				-0.02
				(0.02)				(0.02)				(0.02)				(0.03)
Grandparenthood				-0.58				-0.76				-0.19				-0.52
				(0.44)				(0.50)				(0.48)				(0.50)
Network size				0.02				0.02				0.04**				0.03*
				(0.01)				(0.02)				(0.02)				(0.02)
Constant	2.65***	2.65***	2.67***	4.96***	2.68***	2.72***	2.74***	9.29***	1.70***	1.71***	1.68***	4.70***	2.15***	2.20***	2.17***	2.14***
	(0.05)	(0.06)	(0.06)	(0.75)	(0.07)	(0.07)	(0.08)	(0.91)	(0.06)	(0.06)	(0.06)	(0.74)	(0.05)	(0.06)	(0.06)	(0.76)
n	814	814	814	814	813	813	813	813	813	813	813	813	802	802	802	802
N	1,530	1,530	1,530	1,530	1,532	1,532	1,532	1,532	1,528	1,528	1,528	1,528	1,455	1,455	1,455	1,455

Source: NRW80+ (wave 1-2). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 4a: Hybrid models on the dimensions of PA by divorce/separation (DEAS)

	Index PA				Freedom				Needs				Adaption			
Model	1a	2a	3a	4a	1b	2b	3b	4b	1c	2c	3c	4c	1d	2d	3d	4d
Between effects																
Divorce/separation	0.00	-0.03	0.07	0.12	-0.10	-0.12	-0.02	0.04	0.17***	0.09	0.18	0.19	-0.11***	-0.13**	-0.06	0.12
	(0.04)	(0.04)	(0.08)	(0.08)	(0.07)	(0.07)	(0.15)	(0.15)	(0.07)	(0.07)	(0.14)	(0.14)	(0.06)	(0.06)	(0.13)	(0.12)
Women		0.06***	0.06***	0.04***		0.02	0.04	0.03		0.13***	0.14***	0.13***		0.02	0.03	-0.00
		(0.01)	(0.01)	(0.01)		(0.02)	(0.02)	(0.03)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Women X divorce/separation			-0.14	-0.11			-0.18	-0.07			-0.13	-0.12			-0.25*	-0.19
			(0.09)	(0.09)			(0.17)	(0.17)			(0.16)	(0.16)			(0.14)	(0.14)
Age				-0.01***				-0.01***				-0.01***				-0.01***
				(0.00)				(0.00)				(0.00)				(0.00)
Educational attainment				0.03***				0.11***				-0.01				-0.00
				(0.01)				(0.02)				(0.02)				(0.01)
Migration experience				-0.06**				-0.10**				0.04				-0.04
				(0.03)				(0.05)				(0.05)				(0.04)
Physical health				-0.06***				-0.06***				-0.01**				-0.09***
				(0.00)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.02				-0.01				-0.00				-0.03
				(0.02)				(0.03)				(0.03)				(0.03)
Network size				0.02***				0.03***				-0.01				0.02***
				(0.00)				(0.01)				(0.00)				(0.00)
Within effects																
Divorce/separation	-0.04	-0.05	-0.09**	-0.04	-0.16***	-0.16***	-0.18*	0.02	0.09*	0.07	0.02	0.02	-0.04	-0.04	-0.12	-0.04
	(0.03)	(0.03)	(0.05)	(0.05)	(0.06)	(0.06)	(0.09)	(0.09)	(0.08)	(0.05)	(0.09)	(0.09)	(0.05)	(0.05)	(0.08)	(0.08)
Women X divorce/separation			0.07	0.07			-0.01	-0.02			0.07	0.08			0.09	0.08
			(0.06)	(0.06)			(0.12)	(0.11)			(0.11)	(0.12)			(0.10)	(0.10)
Age				-0.01***				-0.03***				-0.00				-0.01***
				(0.00)				(0.00)				(0.00)				(0.00)
Physical health				-0.02***				-0.02**				-0.01**				-0.02***
				(0.00)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.02				-0.00				-0.02				-0.00
				(0.02)				(0.04)				(0.04)				(0.03)
Network size				0.00				0.01*				0.00				-0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Constant	1.70***	1.68***	1.68***	2.40***	2.00***	2.00***	1.99***	2.86***	2.06***	2.01***	2.01***	2.51***	1.02***	1.01***	1.01***	1.87***
	(0.01)	(0.01)	(0.01)	(0.09)	(0.01)	(0.01)	(0.02)	(0.15)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.16)
n	3,697	3,697	3,697	3,634	3,685	3,685	3,685	3,620	3,686	3,686	3,686	3,620	3,684	3,684	3,684	3,626
N	9,240	9,240	9,240	8,956	8,867	8,867	8,867	8,604	8,864	8,864	8,864	8,600	8,908	8,908	8,908	8,653

Source: DEAS (wave 1-6). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 4b: Hybrid models on the dimensions of PA by divorce/separation (DEAS)

	Cognitive capacity				Dependency				Vitality				Serenity			
Model	1e	2e	3e	4e	1f	2f	3f	4f	1g	2g	3g	4g	1h	2h	3h	4h
Between effects																
Divorce/separation	-0.08	-0.04	0.12	0.19	-0.11	-0.13**	0.13	0.17	-0.05	-0.09	0.20	0.27*	0.10	0.08	0.06	0.04
	(0.06)	(0.07)	(0.13)	(0.13)	(0.06)	(0.07)	(0.14)	(0.13)	(0.07)	(0.07)	(0.14)	(0.14)	(0.06)	(0.06)	(0.12)	(0.12)
Women		0.06***	0.05**	0.05**		0.04**	0.06***	0.03		0.06***	0.08***	0.03		0.03*	0.02	0.02
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Women X divorce/separation			-0.11	-0.07			-0.34**	-0.27*			-0.37**	-0.30*			0.01	0.05
			(0.15)	(0.15)			(0.16)	(0.15)			(0.17)	(0.16)			(0.01)	(0.14)
Age				-0.02***				-0.01***				-0.02***				-0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Educational attainment				0.14***				-0.01				-0.01				0.02
				(0.02)				(0.02)				(0.02)				(0.01)
Migration experience				-0.06				-0.06				-0.11**				-0.10**
				(0.04)				(0.04)				(0.05)				(0.04)
Physical health				-0.04***				-0.10***				-0.11***				-0.01***
				(0.01)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.09***				0.02				-0.01				0.03
				(0.03)				(0.03)				(0.03)				(0.03)
Network size				0.02***				0.03***				0.03***				0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Within effects																
Divorce/separation	-0.07**	-0.08	-0.19**	-0.09	-0.01	-0.02	-0.10	-0.03	-0.14***	-0.15***	-0.24***	-0.15	-0.06	-0.06	0.00	-0.03
	(0.05)	(0.05)	(0.08)	(0.08)	(0.05)	(0.05)	(0.09)	(0.09)	(0.08)	(0.05)	(0.09)	(0.09)	(0.05)	(0.05)	(0.08)	(0.08)
Women X divorce/separation			0.18*	0.16			0.09	0.08			0.11	0.09			0.09	0.07
			(0.10)	(0.10)			(0.11)	(0.11)			(0.11)	(0.11)			(0.10)	(0.10)
Age				-0.02***				-0.00**				-0.02***				-0.00**
				(0.00)				(0.00)				(0.00)				(0.00)
Physical health				-0.02***				-0.02***				-0.03***				-0.01**
				(0.01)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.04				-0.05				-0.02				-0.03
				(0.03)				(0.04)				(0.04)				(0.03)
Network size				0.00				0.01**				0.00				0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Constant	1.94***	1.92***	1.92***	2.95***	1.35***	1.34***	1.33***	1.97***	1.24***	1.22***	1.21***	2.54***	2.24***	2.23***	2.24***	2.26***
	(0.01)	(0.01)	(0.01)	(0.14)	(0.01)	(0.01)	(0.01)	(0.14)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.13)
n	3,684	3,684	3,684	3,625	3,686	3,686	3,686	3,627	3,687	3,687	3,687	3,627	3,687	3,687	3,687	3,628
N	8,916	8,916	8,916	8,658	8,892	8,892	8,892	8,639	8,913	8,913	8,913	8,658	8,919	8,919	8,919	8,663

Source: DEAS (wave 1-6). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 5a: Hybrid models on the dimensions of PA by repartnering (DEAS)

	Index PA				Freedom				Needs				Adaption			
Model	1a	2a	3a	4a	1b	2b	3b	4b	1c	2c	3c	4c	1d	2d	3d	4d
Between effects																
Repartnering	0.27***	0.27**	0.21**	0.18**	0.40***	0.40***	0.26	0.15	0.32**	0.34***	0.29*	0.32**	0.13	0.13	0.18	0.15
	(0.07)	(0.07)	(0.09)	(0.09)	(0.13)	(0.13)	(0.17)	(0.16)	(0.12)	(0.12)	(0.15)	(0.16)	(0.11)	(0.11)	(0.14)	(0.14)
Women		0.05***	0.04***	0.04***		-0.01	-0.02	-0.00		0.15***	0.15***	0.15***		0.00	0.00	-0.01
		(0.01)	(0.01)	(0.01)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Women X repartnering			0.14	0.05			0.33	0.25			0.13	0.06			-0.13	-0.25
			(0.15)	(0.14)			(0.27)	(0.27)			(0.25)	(0.26)			(0.23)	(0.22)
Age				-0.01***				-0.01***				-0.00***				-0.01***
				(0.00)				(0.00)				(0.00)				(0.00)
Educational attainment				0.02**				0.11***				-0.01				-0.01
				(0.01)				(0.02)				(0.02)				(0.01)
Migration experience				-0.07**				-0.11**				0.05				-0.05
				(0.03)				(0.05)				(0.05)				(0.04)
Physical health				-0.06***				-0.07***				-0.01**				-0.08***
				(0.00)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.03				-0.01				-0.02				-0.03
				(0.02)				(0.03)				(0.03)				(0.03)
Network size				0.02***				0.03***				-0.01				0.02***
				(0.00)				(0.00)				(0.00)				(0.00)
Within effects																
Repartnering	-0.03	-0.03	0.01	0.06	-0.03	-0.03	-0.09	0.01	0.00	-0.00	0.03	-0.02	-0.03	-0.03	-0.06	-0.01
	(0.04)	(0.04)	(0.05)	(0.05)	(0.08)	(0.08)	(0.11)	(0.10)	(0.08)	(0.08)	(0.10)	(0.11)	(0.07)	(0.07)	(0.09)	(0.09)
Women X repartnering			0.04	0.05			-0.16	-0.13			-0.10	-0.09			0.08	0.09
			(0.08)	(0.08)			(0.17)	(0.17)			(0.17)	(0.17)			(0.15)	(0.15)
Age				-0.01***				-0.03***				-0.00				-0.01***
				(0.00)				(0.00)				(0.00)				(0.00)
Physical health				-0.02***				-0.01**				-0.01				-0.02***
				(0.00)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.01				0.01				-0.02				-0.01
				(0.02)				(0.04)				(0.04)				(0.03)
Network size				0.00				0.01*				0.00				-0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Constant	1.69***	1.67***	1.67***	2.37***	1.97***	1.97***	1.98***	2.90***	2.07***	2.01***	2.01***	2.47***	1.00***	1.00***	1.00***	1.96***
	(0.01)	(0.01)	(0.01)	(0.08)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.13)
n	3,680	3,680	3,680	3,618	3,668	3,668	3,668	3,604	3,669	3,669	3,669	3,604	3,667	3,667	3,667	3,610
N	9,177	9,177	9,177	8,897	8,802	8,802	8,802	8,543	8,798	8,798	8,798	8,538	8,843	8,843	8,843	8,591

Source: DEAS (wave 1-6). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

Table 5b: Hybrid models on the dimensions of PA by repartnering (DEAS)

	Cognitive capacity				Dependency				Vitality				Serenity			
Model	1e	2e	3e	4e	1f	2f	3f	4f	1g	2g	3g	4g	1h	2h	3h	4h
Between effects																
Repartnering	0.43***	0.43***	0.43***	0.34***	0.24**	0.25**	0.08	0.06	0.23*	0.23*	0.20	0.18	0.15	0.15	0.12	0.10
	(0.12)	(0.12)	(0.15)	(0.15)	(0.12)	(0.12)	(0.15)	(0.15)	(0.13)	(0.13)	(0.16)	(0.16)	(0.11)	(0.11)	(0.14)	(0.14)
Women		0.06***	0.05***	0.08***		0.02	0.01	0.00		0.03	0.02	-0.00		0.04**	0.04**	0.05**
		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)		(0.02)	(0.02)	(0.02)
Women X repartnering			0.00	-0.08			0.40	0.27			-0.03	-0.16			0.08	0.08
			(0.24)	(0.24)			(0.25)	(0.24)			(0.26)	(0.25)			(0.22)	(0.22)
Age				-0.02***				-0.01***				-0.01***				0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Educational attainment				0.13***				-0.02				-0.02				0.01
				(0.02)				(0.02)				(0.02)				(0.02)
Migration experience				-0.05				-0.07				-0.12**				-0.10**
				(0.04)				(0.04)				(0.05)				(0.04)
Physical health				-0.04***				-0.10***				-0.11***				-0.02***
				(0.01)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.10***				0.02				-0.00				0.01
				(0.03)				(0.03)				(0.03)				(0.03)
Network size				0.02***				0.02***				0.03***				-0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Within effects																
Repartnering	-0.01	-0.01	-0.06	0.03	0.07	0.07	0.04	0.08	-0.04	-0.04	-0.18*	-0.13	-0.02	-0.02	0.06	0.08
	(0.07)	(0.07)	(0.09)	(0.09)	(0.08)	(0.08)	(0.10)	(0.10)	(0.08)	(0.08)	(0.10)	(0.10)	(0.07)	(0.07)	(0.09)	(0.09)
Women X repartnering			0.13	0.11			0.08	0.09			0.39**	0.42***			-0.12	-0.11
			(0.15)	(0.15)			(0.16)	(0.16)			(0.17)	(0.16)			(0.14)	(0.15)
Age				-0.02***				-0.00**				-0.02***				-0.00**
				(0.00)				(0.00)				(0.00)				(0.00)
Physical health				-0.02**				-0.02***				-0.03***				-0.01**
				(0.01)				(0.01)				(0.01)				(0.01)
Grandparenthood				-0.04				-0.07*				-0.02				-0.03
				(0.03)				(0.04)				(0.04)				(0.03)
Network size				0.00				0.01**				0.00				0.00
				(0.00)				(0.00)				(0.00)				(0.00)
Constant	1.93***	1.91***	1.91***	2.92***	1.33***	1.32***	1.33***	1.96***	1.21***	1.20***	1.20***	2.50***	2.25***	2.24***	2.23***	2.19***
	(0.01)	(0.01)	(0.01)	(0.14)	(0.01)	(0.01)	(0.01)	(0.14)	(0.01)	(0.01)	(0.01)	(0.15)	(0.01)	(0.01)	(0.01)	(0.13)
n	3,667	3,667	3,667	3,609	3,668	3,668	3,668	3,610	3,670	3,670	3,670	3,611	3,670	3,670	3,670	3,612
N	8,852	8,852	8,852	8,597	8,826	8,826	8,826	8,576	8,849	8,849	8,849	8,597	8,855	8,855	8,855	8,602

Source: DEAS (wave 1-6). *Note:* SE in brackets; *** p < 0.01; ** p < 0.05; * p < 0.1. n = number of individuals. N = number of observations

The univariate analysis of intra-individual developments shows that the experience of widowhood in older age has a significant deteriorating effect on PA (1a). This negative effect is confirmed for adaption (1d), cognitive capacity (1e), and dependency (1f). However, when controlling for covariates, these effects of widowhood on PA do not remain significant (4a, 4d-4f). Taken together, we find that very old individuals do not have significantly more negative PA after widowhood on an overall level. Accordingly, we have to reject hypothesis 1.2 for the old age as well.

Although we do not find a general association of spousal loss and the dimension of adaption, there is a negative effect for women who transition to widowhood in older age: after the death of their partner, women feel more limitations in their activities than before. Furthermore, we observe a contradictory effect for the item on freedom, even after controlling for covariates (1b & 4b): i.e., individuals – and in particular women – have a more positive experience of aging after the death of their partner in older age, as they feel freer to organize their everyday life. Besides that, there are no gender differences in PA after spousal loss. Accordingly, we reject hypothesis 5.

6.3 Divorce and separation

For the DEAS sample II, tables 4a and 4b contain the results of the hybrid models for divorce/separation on PA. As for widowhood, we find no effects indicating group differences in PA between divorced/separated and partnered individuals (1a-4a), which is not in line with our hypothesis. For single items, we see a positive significant effect for needs (1c) and negative significant effects for adaption (1d, 2d) and dependency (2f). However, these effects do not remain stable (4c, 4d, 4f). The effect for vitality (4g) is positive and significant in the full model. This is in line with hypothesis 2.1 and indicates that recently divorced/separated individuals feel more energetic than partnered individuals. Nevertheless, hypothesis 2.1 cannot be confirmed for overall PA.

Regarding gender differences, we see again positive and significant effects for the index of PA (4a), needs (4e), and cognitive capacity (4e). Thus, hypothesis 4 can be confirmed. Accordingly, men have more negative PA than women. The significant interaction effects for gender and partnership status are negative for dependency (4f) and vitality (4g). They indicate that divorced/separated women have more negative PA than divorced/separated men. Thus, hypothesis 5 can be confirmed for these two dimensions but has to be rejected in the overall consideration.

The analysis of intra-individual developments after the transition to divorce/separation shows a negative significant effect for overall PA in model 3a, but the significance does not remain stable in the full model (4a). For single items, a positive significant effect can be found for needs (1c) and negative significant effects for freedom (1b-3b), cognitive capacity (1e, 3e), and vitality (1g-3g). Similar to the effects for the index, they do not remain significant in the full models (4b, 4c, 4e, 4g). Therefore, hypothesis 2.2 has to be rejected.

Hypothesis 5 cannot be confirmed on an intra-individual level since there are no significant effects of the interaction term for gender and partnership status.

6.4 New partnerships

The results on the formation of new partnerships based on the DEAS sample III are presented in Tables 5a and 5b. Individuals who have a new partner display significantly more positive PA than singles, even when control variables are considered (1a-4a). The results for all single items indicate the same direction and are significant for freedom (1b, 2b), needs (1c-3c), cognitive capacity (1e-3e), dependency (1f, 2f), and vitality (1g, 2g). If covariates are controlled, the differences mostly weaken but remain significant for needs (4c) and cognitive capacity (4e). Thus, repartnered individuals tend to have a better idea of what they want and feel more like they can still learn new things than those who remain single. Accordingly, hypothesis 3.1 can be confirmed.

As in the previous models, we find gender differences indicating that women have more positive PA than men (2a-4a). For single items, we see that gender has a positive and significant effect for needs (2c-4c), cognitive capacity (2e-4e), and serenity (2h-4h). Thus, hypothesis 4 can be confirmed.

Regarding intra-individual results, we see only slight and non-significant changes in PA after the transition to new partnerships. Thus, repartnering tends to have no substantial association with PA and hypothesis 3.2 has to be rejected. Additionally, we find neither inter- nor intra-individual effects for the interaction term of gender and partnership status. Thus, hypothesis 5 has to be rejected.

7. Discussion and conclusion

In this study, we investigated whether PA differ by partnership status and how PA develop with partnership transitions in later life using data from two major longitudinal German aging studies: DEAS and NRW80+. Driven by the theoretical concept of chrononormativity (Freeman, 2010; Lahad, 2016), we linked PA to partnership transitions and hypothesized that the transition to widowhood – as a chrononormative transition in older age – leads to a deterioration in PA, while divorce or separation and transitions to new partnerships – as non-chrononormative transitions in older age – enhance PA. For gender, we hypothesized that men and women have different PA and that partnership transitions influence PA for women and men differently.

In our analysis, we found no stable group differences in overall PA between widowed and married individuals for both datasets. However, for NRW80+, we found a robust negative association of widowhood and dependency, which is in line with our hypothesis. According to that, widowed individuals tend to fell more dependent on the help of others than married individuals. Results that are contrary to our hypothesis are that widowed individuals feel like to know themselves better (serenity, DEAS) and to feel less limited in their activities (adaption, NRW80+) than their married counterparts.

Similarly, we found no stable support for our assumptions on the intra-individual development of PA in the course of the transition to widowhood. However, we found robust positive associations for the dimension of freedom (DEAS & NRW80+) and adaption (DEAS). Contrary to our hypothesis, this indicates that after the experience of spousal loss, older individuals tend to feel freer in their time and less restricted in their physical capability.

Potential explanations for the contradictory findings are the caregiver burden for high-maintenance partners (Bennett et al., 2020; Keene & Prokos, 2008; Schaan, 2013), negative interactions with the partner (Cohen, 2004), or a low partnership quality (Carr & Utz, 2001) before bereavement. Our results therefore indicate that if these stressful factors disappear due to the death of the partner, surviving spouses could value their regained freedom and pay more attention to themselves. Another explanation for our unexpected findings could be that married couples often have similar beliefs about aging (Mejía & Gonzalez, 2017). If the PA of both partners worsen because one of them is close to death, the PA of the surviving partner could recover after the bereavement. Additionally, previous research indicates that the majority of older individuals has a high resilience and, thus, can adopt to widowhood (Spahni et al., 2015).

For divorced or separated individuals, our results indicate no group differences for overall PA, but – in line with our hypothesis – we found that they feel more energetic than partnered individuals (vitality). Contrary to our hypothesis, the results did not indicate any intra-individual development of PA during divorce or separation. This is in line with previous contradictory findings on the adaption to divorce or separation. On the one hand, these transitions were associated with worse subjective well-being (Leopold, 2018) and reduced life satisfaction (Bowen & Jensen, 2017). On the other hand, they were also linked, e.g., to constant or modestly increasing self-rated health, and personal growth (Perrig-Chiello et al., 2015). These associations could presumably be related to single dimensions of PA like adaption, dependency, or vitality.

For the transition to new partnerships, we found robust group differences for overall PA, needs, and cognitive capacity. As hypothesized, the repartnered have more positive PA than singles. This indicates that repartnered individuals have a better idea of what they want and feel more like they can still learn new things. However, we found no significant intra-individual effects indicating that PA do not change with repartnering in later life. Based on previous findings, this is rather unexpected, since this transition is associated with higher happiness (Lee, 2018) and life satisfaction (Bowen & Jensen, 2017).

For gender, the findings of the two data sets are conflicting: in DEAS, women have more positive overall PA and more positive perceptions for the dimensions of needs and cognitive capacities (all samples) as well as for serenity (repartnering sample). In NRW80+, women have more negative perceptions for the dimensions of freedom and dependency. These findings indicate that older women have more positive

perceptions of their aging experience in general, they have a better idea of what they want, and they feel more like they can still learn things than men. Contrarily, oldest old women feel less free in spending their time and more dependent on the help of others than men. Based on these findings, we assume that just like the negative stereotypes and chrononormative expectations are shifting from the third to the fourth age (van Dyk & Lessenich, 2009), gender differences in the experience of the own aging process are shifting accordingly. Another possible explanation for these gender differences might be the differing operationalization of PA in both data sets.

Finally, we found stable interactions of gender and partnership status for single dimensions of PA indicating gender-specific differences. Widowed women feel freer to spend their time in everyday life than men. After the transition to widowhood in later life, this feeling of freedom also increases more strongly for women than for men (freedom, NRW80+). However, women feel a stronger need to limit their activities than men during the transition to widowhood (adaption, NRW80+). Again, a possible explanation can be found in the caregiver burden as most of care work within partnerships is done by women (Gildemeister, 2008; Keene & Prokos, 2008). Women who are divorced or separated can compensate worse for their physical losses and feel less energetic than men (dependency, vitality, DEAS). This is in line with previous research that indicates that divorce is a health risk for women but not for men (Dupre & Meadows, 2007). However, after the formation of new partnerships, women feel more energetic than men (vitality, DEAS). These findings confirm that partnership transitions are gendered in later life (Klaus & Mahne, 2019; Koren 2016; Lengerer, 2016).

To sum up, we found only slight support for an association of the transitions to widowhood, to divorce and separation, or to new partnerships and overall PA in Germany. Consequently, we have to reject our hypotheses on the association of partnership transitions and PA in later life. However, we can confirm the hypothesis on gender differences in PA at least for the DEAS sample.

Our results are restricted by several limitations. (1) The small sample size of individuals who transitioned to widowhood may have contributed to the low amount of significant effects found in our study. The sample size for divorce or separation and for repartnering was even smaller, which might explain the lack of significance for intra-individual effects in particular. However, despite the small sample sizes, we did find some significant associations. (2) Additionally, the scales for the perceptions of aging in DEAS and NRW80+ that we used to operationalize PA do not measure identical constructs. This somewhat limits the comparability of the results from the two samples. Nevertheless, the aim of this study was not to compare findings from two different data sets, but rather to analyze the effects of partnership transitions on different measurements of PA. Moreover, our findings support the importance to consider multiple dimensions of PA separately to account for different spheres of aging. (3) We did neither account for the timing of the transitions nor for the duration of the new status, even though these factors could be related to the long-term development of PA (cf. Rupprecht et al., 2022). (4) Another problem that we could not rule out in this study could emerge from reversed causality (Kaspar et al., 2022). Apart from being influencing factors, partnership transitions could also be an outcome of PA. (5) Lastly, or findings could be limited by potential problems from selectivity and panel conditioning. Especially in surveys with older respondents, the selectivity of survey participation, the maintenance in the follow-up waves, and the possible consequences of the repetitiveness of questions can lead to severe problems (Wolke et al., 2009). However, neither the method reports for DEAS (Klaus & Engstler, 2017; Schiel et al., 2018), nor the report for NRW80+ (Brix et al., 2021; cf. Kaspar et al., 2022 for an example) suggest severe biasing effects from panel mortality (see appendix: Tab. A.1a & A.1b).[6]

An important aim of the NRW80+ study is the augmentation of the DEAS by representative data for the population aged 80 years and older to broaden the research scope for the second half of life (Wagner et al., 2018). Especially the conflicting results for gender in DEAS and NRW80+ indicate differing mechanisms in

[6] Tab. A. 1a and A. 1b show the sample characteristics for the analytical samples and the baseline samples for DEAS and NRW80+. For DEAS, the distribution of the dependent variables does not differ noticeably between the analytical sample and the baseline sample. The respondents in the analytical sample are considerably older than the respondents in the baseline sample and there are smaller differences regarding partnership status and gender. For NRW80+, the distribution of the dependent variables differs only slightly between the analytical sample and the baseline sample. Both samples do not differ considerably regarding age or gender. We assume that the differences between the analytical samples and the baseline samples are rather based on decisions in the sampling process (e.g., by excluding non-retired or never married respondents) than on systematic selection bias.

the third and fourth age. The combination of the two data sets allows for detecting these differences to enhance our understanding of the heterogeneity in later life.

To our knowledge, this is the first study analyzing data from two major German aging studies to investigate changes in PA after partnership transitions. However, after analyzing the results from the two surveys, we showed that there is no clear evidence of a connection between partnership transitions and PA in later adulthood in Germany. This finding is in line with Kaspar et al. (2022) but contradicts recent results from the US (Turner et al., 2023). Possible explanations for the conflicting findings could be cultural differences. For example, they could be a consequence of differing aging ideals or differing policy support in older age (Westerhof & Barrett, 2005; Westerhof et al., 2003), e.g., by widow's pensions. Further cross-national comparisons addressing the relationship of partnerships and PA could be fruitful chances for future research.

Moreover, we showed that there are different associations of partnership transitions and PA for single spheres of aging. Our results suggest that the relationship between partnership transitions and PA could be more complex than unidimensional measurements indicate. However, many previous studies on this topic measured the perception of aging unidimensionally. In accordance with Kaspar et al. (2022) and Jung et al. (2021), our results underline the need to apply a multidimensional conceptualization of PA in future research.

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Data availability statement

This study uses data from the German Ageing Survey (DEAS) and the NRW80+ study. DEAS is available from the Research Data Centre of the German Centre of Gerontology: https://doi.org/10.5156/DEAS.1996-2021.M.001. NRW80+ panel data (ZA7893 Data file Version 1.0.0) is available from the GESIS Data Archive, Cologne: https://doi.org/10.4232/1.13985. NRW80+ wave 1 (baseline sample, ZA7558 Data file Version 2.0.0) is available from the GESIS Data Archive, Cologne: https://doi.org/10.4232/1.13978.

References

Albrecht, A., Fey, J., Kaspar, R., Wagner, M., & Zank, S. (2022). Quality of life and well-being of very old people in NRW (representative survey NRW80+) - panel. GESIS, Cologne. ZA7893 Data file Version 1.0.0. https://doi.org/10.4232/1.13985

Amato, P. R. (2000). The consequences of divorce for adults and children. *Journal of Marriage and the Family, 62*(4), 1269–1287. doi:10.1111/j.1741-3737.2000.01269.x

Bai, X. (2014). Images of ageing in society: A literature review. *Population Ageing, 7*(3), 231–252. https://doi.org/10.1007/s12062-014-9103-x

Bamler, V. (2008). Sexualität in der dritten Lebensphase. In S. Buchen & M. S. Maier (Eds.), *Älterwerden neu denken. Interdisziplinäre Perspektiven auf den demografischen Wandel* (pp. 181–195). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91109-0_11

Barrett, A. E. (2005). Gendered experiences in midlife: Implications for age identity. *Journal of Aging Studies, 19*(2), 163–183. https://doi.org/10.1016/j.jaging.2004.05.002

Barrett, A. E., & Gumber, C. (2020). Feeling old, body and soul: The effect of aging body reminders on age identity. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 75*(3), 625–629. https://doi.org/10.1093/geronb/gby085

Bennett, K. M., Morselli, D., Spahni, S., & Perrig-Chiello, P. (2020). Trajectories of resilience among widows: a latent transition model. *Aging & Mental Health, 24*(12), 2014–2021. https://doi.org/10.1080/13607863.2019.1647129

Bergland, A., Nicolaisen, M., & Thorsen, K. (2013). Predictors of subjective age in people aged 40–79: A five-year follow-up study. The impact of mastery, mental and physical health. *Aging & Mental Health, 18*(5), 653–661. http://dx.doi.org/10.1080/13607863.2013.869545

Bildtgård, T., & Öberg, P. (2017). New intimate relationships in later life: Consequences for the social and filial network? *Journal of Family Issues, 38*(3), 381–405. https://doi.org/10.1177/0192513X15579503

Bordone, V., Arpino, B., & Rosina, A. (2020). Forever young? An analysis of the factors influencing perceptions of ageing. *Ageing & Society, 40*(8), 1669–1693. https://doi.org/10.1017/S0144686X19000084

Bowen, G. L., & Jensen, T. M. (2017). Late-life divorce and postdivorce adult subjective well-being. *Journal of Family Issues, 38*(10), 1363–1388. https://doi.org/ 10.1177/0192513X15596197

Brix, J., Steinacker, G., & Schneekloth, U. (2021). NRW80+. Lebensqualität und Wohlbefinden älterer Menschen in Nordrhein-Westfalen. Methodenbericht. Kantar.

Brown, S. L., & Lin, I.-F. (2012). The gray divorce revolution: Rising divorce among middle-aged and older adults, 1990-2010. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 67*(6), 731–741. https://doi.org/10.1093/geronb/gbs089

Brüderl, J. (2010). Kausalanalyse mit Paneldaten. In C. Wolf & H. Best (Eds.), *Handbuch der sozialwissenschaftlichen Datenanalyse* (pp. 963–994). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-92038-2_36

Buchen, S., & Maier, M. S. (2008). Älterwerden neu denken. Interdisziplinäre Perspektiven auf den demografischen Wandel. Eine Einleitung. In S. Buchen & M. S. Maier (Eds.), *Älterwerden neu denken. Interdisziplinäre Perspektiven auf den demografischen Wandel* (pp. 7–27). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91109-0_1

Carpenter, L. M., Nathanson, C. A., & Kim, Y. J. (2006). Sex after 40? Gender, ageism, and sexual partnering in midlife. *Journal of Aging Studies, 20*(2), 93–106. https://doi.org/10.1016/j.jaging.2005.06.003

Carr, D., & Utz, R. (2001). Late-life widowhood in the United States: New directions in research and theory. *Ageing International, 27*(19), 65–88. https://doi.org/10.1007/s12126-001-1016-3

Casado-Gual, N. (2020). Ageing and romance on the big screen: The 'silvering romantic comedy' Elsa & Fred. *Ageing & Society, 40*, 2257–2265. https://doi.org/10.1017/S0144686X19000643

Clarke, L. H., & Griffin, M. (2008). Visible and invisible ageing: Beauty work as a response to ageism. *Ageing & Society, 28*(5), 653–674. https://doi.org/10.1017/S0144686X07007003

Cohen, S. (2004). Social relationships and health. *American Psychologist, 59*(8), 676–684. https://doi.org/10.1037/0003-066X.59.8.676

Coupland, J. (2000). Past the „perfect kind of age"? Styling selves and relationships in over-50s dating advertisements. *Journal of Communication, 50*(3), 9–30. https://doi.org/10.1111/j.1460-2466.2000.tb02850.x

Degele, N. (2008). Schöner Altern. Altershandeln zwischen Verdrängung, Resonanzen und Solidaritäten. In S. Buchen & M. S. Maier (Eds.), *Älterwerden neu denken. Interdisziplinäre Perspektiven auf den demografischen Wandel* (pp. 165–180). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91109-0_10

De Jong Gierveld, J. (2002). The dilemma of repartnering: Considerations of older men and women entering new intimate relationships late in life. *Ageing International, 27*(4), 61-78. https://doi.org/10.1007/s12126-002-1015-z

Demakakos, P., Gjonca, E., & Nazroo, J. (2007). Age identity, age perceptions, and health. Evidence from the English Longitudinal Study of Ageing. *Annals of the New York Academy of Sciences, 1114*, 279–287. https://doi.org/10.1196/annals.1396.021

DESTATIS (2016). Ältere Menschen in Deutschland und der EU. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/Publikationen/Downloads-Bevoelkerungsstand/broschuere-aeltere-menschen-0010020169004.pdf?__blob=publicationFile [retrieved March 6, 2023]

DESTATIS (2021). Datenreport 2021. Ein Sozialbericht für die Bundesrepublik Deutschland. https://www.destatis.de/DE/Service/Statistik-Campus/Datenreport/Downloads/datenreport-2021.pdf?__blob=publicationFile [retrieved March 6, 2023]

DESTATIS (2022a). 15. koordinierte Bevölkerungsvorausberechnung. Annahmen und Ergebnisse. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsvorausberechnung/begleitheft.html [retrieved March 6, 2023]

DESTATIS (2022b). Eheschließungen und durchschnittliches Heiratsalter Lediger. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Eheschliessungen-Ehescheidungen-Lebenspartnerschaften/Tabellen/eheschliessungen-heiratsalter.html [retrieved March 6, 2023]

DESTATIS (2022c). Maßzahlen zu Ehescheidungen 2000 bis 2021. https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Eheschliessungen-Ehescheidungen-Lebenspartnerschaften/Tabellen/masszahlen-ehescheidungen.html [retrieved March 6, 2023]

Deutsche Rentenversicherung (2022). Statistik der Deutschen Rentenversicherung. Rente 2021. Rentenzugang, Rentenwegfall, Rentenänderung und Rentenbestand. Band 224. https://statistik-rente.de/drv/extern/publikationen/statistikbaende/documents/Rente_2021.pdf [retrieved March 6, 2023]

Diehl, M., Wettstein, M., Spuling, S., & Wurm, S. (2021). Age-related change in self-perceptions of aging: Longitudinal trajectories and predictors of change. *Psychology and Aging, 36*(3), 344–359. https://doi.org/10.1037/pag0000585

DiGiulio, J. F. (1992). Early widowhood. An atypical transition. *Journal of Mental Health Counseling, 14*(1), 97–109.

Djundeva, M. (2018). Partnership trajectories and cardiovascular health in late life of older adults in England and Germany. *SSM – Population Health, 6*, 26–35. https://doi.org/10.1016/j.ssmph.2018.08.001

Dupre, M. E., & Meadows, S. O. (2007). Disaggregating the effects of marital trajectories on health. *Journal of Family Issues, 28*(5), 623–652. https://doi.org/10.1177/0192513X06296296

Eckhard, J. (2021). Social isolation as a consequence of transitions in partner relationships: How formations and endings of partner relationships affect the risk of social disconnectedness. *Journal of Family Research, 33*(1), 22–71. https://doi.org/10.20377/jfr-367

Eckhard, J., Stauder, J., & Wiese, D. (2015). Die Entwicklung des Partnermarkts im Längsschnitt – Alters- und Kohortenunterschiede. *Kölner Zeitschrift für Soziologie und Sozialpsychologie, 67*(1), 81–109. https://doi.org/10.1007/s11577-015-0316-7

Engstler, H., Lozano Alcántara, A., Luitjens, M., & Klaus, D. (2019). *German Ageing Survey, Deutscher Alterssurvey (DEAS): Documentation of instruments and variables 1996 – 2017*. German Centre of Gerontology. https://doi.org/10.5156/DEAS.1996-2017.D.001

Featherstone, M., & Hepworth, M. (1993). Images of ageing. In J. Bond, P. G. Coleman, & S. Peace (Eds.), *Ageing in society. An introduction to social gerontology* (2nd ed., pp. 304–332). SAGE publications.

Fileborn, B., Thorpe, R., & Hawkes, G. (2015). Sex and the (older) single girl: Experiences of sex and dating in later life. *Journal of Aging Studies, 33*(3), 67–75. https://doi.org/10.1016/j.jaging.2015.02.002

Freeman, E. (2010). *Time binds: Queer temporalities, queer histories*. Duke University Press. https://doi.org/10.1215/9780822393184

Funk, L. M., & Kobayashi, K. M. (2016). From motivations to accounts: An interpretive analysis of "living apart together" relationships in mid- to later-life couples. *Journal of Family Issues, 37*(8), 1101–1122. https://doi.org/10.1177/0192513X14529432

Furstenberg, F. F. (2005). Non-normative life course transitions. Reflections on the significance of demographic events on lives. *Advances in Life Course Research, 10*, 155–172. https://doi.org/10.1016/S1040-2608(05)10005-7

German Centre of Gerontology - Research Data Centre (2016). SUF_DEAS1996_3-0_de_Stata (DEAS) 1996, Version 3.0. https://doi.org/10.5156/DEAS.1996.M.004
German Centre of Gerontology - Research Data Centre (2019). SUF_DEAS2002_3-1_de_Stata (DEAS) 2002, Version 3.1. https://doi.org/10.5156/DEAS.2002.M.005
German Centre of Gerontology - Research Data Centre (2019). SUF_DEAS2008_3-1_de_Stata (DEAS) 2008, Version 3.1. https://doi.org/10.5156/DEAS.2008.M.005
German Centre of Gerontology - Research Data Centre (2019). SUF_DEAS_2011_2-1_de_Stata (DEAS) 2011, Version 2.1. https://doi.org/10.5156/DEAS.2011.M.004
German Centre of Gerontology - Research Data Centre (2020). SUF_DEAS_2014_3-0_de (DEAS) 2014, Version 3.0. https://doi.org/10.5156/DEAS.2014.M.005
German Centre of Gerontology - Research Data Centre (2020). SUF_DEAS_2017_2-0_de (DEAS) 2017, Version 2.0. https://doi.org/10.5156/DEAS.2017.M.003
Giesselmann, M., & Windzio, M. (2012). *Regressionsmodelle zur Analyse von Paneldaten*. Springer VS. https://doi.org/10.1007/978-3-531-18695-5_2
Gildemeister, R. (2008). Was wird aus der Geschlechterdifferenz im Alter? Über die Angleichung von Lebensformen und das Ringen um biografische Kontinuität. In S. Buchen & M. S. Maier (Eds.), *Älterwerden neu denken. Interdisziplinäre Perspektiven auf den demografischen Wandel* (pp. 197–215). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-91109-0_12
Gloor, S., Gonin-Spahni, S., Znoj, H., & Perrig-Chiello, P. (2021). Repartnering and trajectories of life satisfaction after separation and divorce in middle and later life. *Journal of Social and Personal Relationships, 38*(7), 2205–2224. https://doi.org/10.1177/02654075211009
Hansen, S., Kaspar, R., Wagner, M., Woopen, C., & Zank, S. (2021). The NRW80+ study: Conceptual background and study groups. *Zeitschrift für Gerontologie und Geriatrie, 54*(Suppl 2), 76–84. https://doi.org/10.1007/s00391-021-01970-z
Hockey, J., Penhale, B., & Sibley, D. (2001). Landscapes of loss: Spaces of memory, times of bereavement. *Ageing & Society, 21*(6), 739–757. https://doi.org/10.1017/S0144686X01008480
Jung, S., Cham, H., Siedlecki, K., & Jopp, D. S. (2021). Measurement invariance and development trajectories of multidimensional self-perceptions of aging in middle-aged and older adults. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 76*(3), 483–495. https://doi.org/10.1093/geronb/gbz099
Kasif, T., & Band-Winterstein, T. (2017). Older widows' perspectives on sexuality: A life course perspective. *Journal of Aging Studies, 41*, 1–9. https://doi.org/10.1016/j.jaging.2017.01.002
Kaufman, G., & Elder, G. H., Jr. (2003). Grandparenting and age identity. *Journal of Aging Studies, 17*(3), 269–282. https://doi.org/10.1016/S0890-4065(03)00030-6
Kaspar, R., Gabrian, M., Brothers, A., Wahl, H.-W., & Diehl, M. (2019). Measuring awareness of age-related change: Development of a 10-item short form for use in large-scale surveys. *The Gerontologist, 59*(3), e130–e140. https://doi.org/10.1093/geront/gnx213
Kaspar, R., Geithner, L., Janhsen, A., Neise, M., & Schmitz, W. (2019). NRW80+ Repräsentativbefragung. Interview mit Zielperson (ZPCAPI). Codebuch. ceres – cologne center for ethics, rights, economics, and social sciences.
Kaspar, R., Wahl, H.-W., Diehl, M., & Zank, S. (2022). Subjective views of aging in very old age: Predictors of 2-year change in gains and losses. *Psychology and Aging, 37*(4), 503–516. https://doi.org/10.1037/pag0000684
Keene, J. R., & Prokos, A. H. (2008). Widowhood and the end of spousal care-giving: Relief or wear and tear? *Ageing and Society, 28*(4), 551–570. https://doi.org/10.1017/S0144686X07006654
Klaus, D., & Engstler, H. (2017). Daten und Methoden des Deutschen Alterssurveys. In K. Mahne, J. K. Wolff, J. Simonson & C. Tesch-Römer (Eds.), *Altern im Wandel. Zwei Jahrzehnte Deutscher Alterssurvey (DEAS)* (pp. 29–45). Springer VS. https://doi.org/10.1007/978-3-658-12502-8_2
Klaus, D., Engstler, H., Mahne, K., Wolff, J. K., Simonson, J., Wurm, S., & Tesch-Römer, C. (2017). Cohort profile: The German Ageing Survey (DEAS). *International Journal of Epidemiology, 46*(4), 1105–1105g. https://doi.org/10.1093/ije/dyw326
Klaus, D., & Mahne, K. (2019). Partnerschaft und Familie im Alter. In K. Hank, F. Schulz-Nieswandt, M. Wagner, & S. Zank (Eds.), *Alternsforschung. Handbuch für Wissenschaft und Praxis* (pp. 357–390). Nomos. https://doi.org/10.5771/9783845276687-357

Kohli, M. (2007). The institutionalization of the life course: Looking back to look ahead. *Research in Human Development, 4*(3–4), 253–271. https://doi.org/10.1080/15427600701663122

Koren, C. (2016). Men's vulnerability–women's resilience: From widowhood to late-life repartnering. *International Psychogeriatrics, 28*(5), 719–731. https://doi.org/10.1017/S1041610215002240

Kotter-Grühn, D., Kornadt, A. E., & Stephan, Y. (2016). Looking beyond chronological age: Current knowledge and future directions in the study of subjective age. *Gerontology, 62*(1), 86–93. https://doi.org/10.1159/000438671

Lahad, K. (2017). *A table for one. A critical reading of singlehood, gender and time*. Manchester University Press. https://doi.org/20.500.12854/29854

Lee, S. (2018). Removing the stigma of divorce: Happiness before and after remarriage. *SOEPpapers on Multidisciplinary Panel Data Research, 961*. Deutsches Institut für Wirtschaftsforschung (DIW). http://hdl.handle.net/10419/178204 [retrieved August 15, 2023]

Lengerer, A. (2016). Partnerschaftliches Zusammenleben im Alter: Ausmaß, Formen und soziale Unterschiede im Lebensverlauf von Kohorten. In J. Stauder, I. Rapp, & J. Eckhard (Eds.), *Soziale Bedingungen privater Lebensführung* (pp. 15–40). Springer VS. https://doi.org/10.1007/978-3-658-10986-8_2

Lenz, K. (2009). *Soziologie der Zweierbeziehung. Eine Einführung*. VS Verlag für Sozialwissenschaften.

Leopold, T. (2018). Gender differences in the consequences of divorce: A study of multiple outcomes. *Demography, 55*(3), 769–797. https://doi.org/10.1007/s13524-018-0667-6

Logan, J. R., Ward, R., & Spitze, G. (1992). As old as you feel: Age identity in middle and later life. *Social Forces, 71*(2), 451–467. https://doi.org/10.1093/sf/71.2.451

Martin-Matthews, A. (2015). Widowhood and its cultural representations. In J. Twigg & W. Martin (Eds.), *Routledge handbook of cultural gerontology* (pp. 243–251). Routledge.

Mejía, S. T., & Gonzalez, R. (2017). Couples' shared beliefs about aging and implications for future functional limitations. *The Gerontologist, 57*(S2), S149–S159. https://doi.org/10.1093/geront/gnx071

Menning, S. (2007). Haushalte, familiale Lebensformen und Wohnsituation älterer Menschen. Report Altersdaten 2/2007. Deutsches Zentrum für Altersfragen.

Nave-Herz, R. (2022). *Die Ehe in Deutschland. Eine soziologische Analyse über Wandel, Kontinuität und Zukunft*. Barbara Budrich. https://doi.org/10.3224/84742655

Perrig-Chiello, P., Hutchinson, S., & Morselli, D. (2015). Patterns of psychological adaptation to divorce after a long-term marriage. *Journal of Social and Personal Relationships, 32*(3) 386–405. https://doi.org/10.1177/0265407514533769

Rossow, J. (2012). Einführung: Individuelle und kulturelle Altersbilder. In F. Berner, J. Rossow, & K.-P. Schwitzer (Eds.), *Individuelle und kulturelle Altersbilder. Expertisen zum Sechsten Altenbericht der Bundesregierung* (Vol. 1, pp. 10–24). VS Verlag für Sozialwissenschaften. https://doi.org/10.1007/978-3-531-93286-6_1

Rothenbacher, F., & Fertig, G. (2015). Bevölkerung, Haushalte und Familien. In T. Rahlf (Ed.), *Deutschland in Daten. Zeitreihen zur Historischen Statistik* (pp. 30–45). Bundeszentrale für politische Bildung.

Rupprecht, F., Sabatini, S., Diehl, M., Gerstorf, D., Kaspar, R., Schilling, O. K., & Wahl, H.-W. (2022). Awareness of age-related change in the context of major life events. *Frontiers in Psychology*, 1–14. https://doi.org/10.3389/fpsyt.2022.954048

Schaan, B. (2013). Widowhood and depression among older Europeans – The role of gender, caregiving, marital quality, and regional context. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 68*(3), 431–442. https://doi.org/10.1093/geronb/gbt015

Schafer, M. H., & Shippee, T. P. (2010). Age identity in context: Stress and the subjective side of aging. *Social Psychology Quarterly, 73*(3), 245–264. https://doi.org/10.1177/0190272510379751

Schiel, S., Ruiz Marcos, J., Dickmann, C., Aust, F., & Middendorf, L. (2019). Methodenbericht. Deutscher Alterssurvey (DEAS): Durchführung der 6. Erhebungswelle 2017. infas Institut für angewandte Sozialwissenschaft GmbH.

Sears-Roberts Alterovitz, S., & Medelsohn, G. A. (2009). Partner preferences across the life span: Online dating by older adults. *Psychology and Aging, 24*(2), 513–517. https://doi.org/10.1037/2160-4134.1.S.89

Spahni, S., Morselli, D., Perrig-Chiello, P., & Bennett, K. M. (2015). Patterns of psychological adaption to spousal bereavement in old age. *Gerontology, 61*(5), 456–486. https://doi.org/10.1159/000371444

Shmerlina, I. A. (2015). Features of the sense of age identity in older age. *Sociological Research, 54*(3), 203–219. https://doi.org/10.1080/10610154.2015.1098347

Steverink, N., Westerhof, G. J., Bode, C., & Dittmann-Kohli, F. (2001). The personal experience of aging, individual resources, and subjective well-being. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 56B*(6), P364–P373. https://doi.org/10.1093/geronb/56.6.P364

Turner, S. G., Witzel, D. D., Stawski, R. S., & Hooker, K. (2023). How do marital transitions affect self-perceptions of aging? *Research on Aging, 45*(3-4), 374–384. https://doi.org/10.1177/01640275221113219

van Dyk, S. (2017). Zur Interdependenz und Analyse von Alter(n) und Geschlecht. Theoretische Erkundungen und zeitdiagnostische Überlegungen. In T. Denninger, & L. Schütze (Eds.), *Alter(n) und Geschlecht. Neuverhandlungen eines sozialen Zusammenhangs* (pp. 24–50). Westfälisches Dampfboot.

van Dyk, S., & Lessenich, S. (2009). »Junge Alte«: Vom Aufstieg und Wandel der Sozialfigur. In S. van Dyk & S. Lessenich (Eds.), *Die jungen Alten. Analysen einer neuen Sozialfigur* (pp. 11–48). Campus.

Wagner, M., Rietz, C., Kaspar, R., Janhsen, A., Geithner, L., Nelse, M., Kinne-Wall, C., Woopen, C., & Zank, S. (2018). Quality of life of the very old. Survey on quality of life and subjective well-being of the very old in North Rhine-Westphalia (NRW80+). *Zeitschrift für Gerontologie und Geriatrie, 51*(2), 193–199. https://doi.org/10.1007/s00391-017-1217-3

Watson, W. K., & Stelle, C. (2011). Dating for older women: Experiences and meanings of dating in later life. *Journal of Women & Aging, 23*(3), 263–275. https://doi.org/10.1080/08952841.2011.587732

Westerhof, G. J., & Barrett, A. E. (2005). Age identity and subjective well-being: A comparison of the United States and Germany. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 60B*(3), 129–136. https://doi.org/10.1093/geronb/60.3.S129

Westerhof, G. J., Barrett, A. E., & Steverink, N. (2003). Forever young? A comparison of age identities in the United States and Germany. *Research on Aging, 25*(4), 366–383. https://doi.org/10.1177/0164027503025004002

Westerhof, G. J., Miche, M., Brothers, A. F., Barrett, A. E., Diehl, M., Montepare, J. M., Wahl, H.-W., & Wurm, S. (2014). The influence of subjective aging on health and longevity: A meta-analysis of longitudinal data. *Psychology and Aging, 29*(4), 793–802. https://doi.org/10.1037/a0038016

Wolke, D., Waylen, A., Samara, M., Steer, C., Goodman, R., Ford, T., & Lamberts, K. (2009). Selective drop-out in longitudinal studies and non-biased prediction of behaviour disorders. *The British Journal of Psychiatry, 195*(3), 249–256. https://doi.org/ 10.1192/bjp.bp.108.053751

Wooldridge, J. M. (2009). *Introductory econometrics. A modern approach*. CENGAGE Learning.

Yu, J., Kahana, E., Kahana, B., & Han, C. (2019). Depressive symptoms among elderly men and women who transition to widowhood: Comparisons with long term married and long term widowed over a 10-year period. *Journal of Women & Aging*, 1–16. https://doi.org/10.1080/08952841.2019.1685855

Zank, S., Woopen, C., Wagner, M., Rietz, C., & Kaspar, R. (2022). Quality of Life and Well-being of Very Old People in NRW (Representative Survey NRW80+) - Cross-Section Wave 1. GESIS, Cologne. ZA7558 Data file Version 2.0.0, https://doi.org/10.4232/1.13978

Zihan, Y., & Post, T. (2020). What age do you feel? – Subjective age identity and economic behaviors. *Journal of Economic Behavior and Organization, 173*, 322–341. https://doi.org/10.1016/j.jebo.2019.08.004

Information in German

Deutscher Titel

Beeinflussen Partnerschaftsübergänge im höheren Lebensalter die individuellen Wahrnehmungen des Alterns? Ergebnisse des Deutschen Alterssurveys und der NRW80+-Hochaltrigenstudie

Zusammenfassung

Fragestellung: Die Studie geht erstens der Frage nach, wie sich die individuellen Wahrnehmungen des Alterns (PA) nach Partnerschaftsstatus unterscheiden. Zweitens wird gefragt, wie PA sich mit dem Erleben eines Partnerschaftsübergangs (Verwitwung, Scheidung/Trennung oder Wiederverpartnerung) im späteren Erwachsenenalter in Deutschland entwickeln.

Hintergrund: Bisherige Forschung aus anderen Ländern kam bezüglich des Zusammenhangs von Partnerschaftsstatus bzw. -übergängen und PA zu widersprüchlichen Erkenntnissen. Obwohl PA ein wichtiger Indikator für bestimmte Lebensbereiche älterer Menschen sind, ist wenig über ihren Zusammenhang mit Partnerschaftsübergängen in Deutschland bekannt.

Methode: Wir verwenden Paneldaten aus sechs Wellen des Deutschen Alterssurveys (1996-2017, n=3.848) und den ersten beiden Wellen der NRW80+-Studie (2017-2020, n=845) für Befragte im Ruhestand. Wir benutzen lineare Hybridmodelle, um inter- und intraindividuelle Unterschiede nach Verwitwung, Scheidung/Trennung und dem Eingehen neuer Partnerschaften zu analysieren.

Ergebnisse: Stabile Zusammenhänge zwischen Partnerschaftsstatus/-übergängen und PA lassen sich nur für einzelne Dimensionen des Alterns feststellen. Verwitwete Personen fühlen sich zum Beispiel abhängiger von Anderen als verheiratete Personen. Nach dem Übergang der Verwitwung fühlen sich Personen freier, ihre Zeit nach ihren eigenen Wünschen zu verbringen. Wiederverpartnerte Personen haben positivere PA als Singles. Zusätzlich fanden wir widersprüchliche Geschlechterunterschiede bei älteren und hochaltrigen Personen.

Schlussfolgerung: Im Gegensatz zu aktuellen Untersuchungen zeigen wir, dass es in Deutschland nur einen geringen Zusammenhang zwischen dem Partnerschaftsstatus bzw. Partnerschaftsübergängen und PA gibt. Unsere Ergebnisse heben die Bedeutung einer multidimensionalen Konzeptualisierung von PA in der gegenwärtigen Forschung hervor.

Schlagwörter: Verwitwung, Scheidung, Wiederverpartnerung, höheres Alter, hybride Regressionsmodelle

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