The Transition to Grandparenthood and its Impact on the Big Five Personality Traits and Life Satisfaction

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Abstract

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Becoming a grandparent is a pivotal life event for many people in midlife or old age (Infurna et al., 2020). At the same time, there is considerable heterogeneity in how intensely grandparents are involved in their grandchildren's lives and care (Meyer & Kandic, 2017). In the context of an aging demographic, the time that grandparents are alive and in good health during grandparenthood is prolonged compared to previous generations (Leopold & Skopek, 2015; Margolis & Wright, 2017). In addition, an increased share of childcare functions are being fulfilled by grandparents (Hayslip et al., 2019; Pilkauskas et al., 2020). Thus, intergenerational relations have received heightened attention from psychological and sociological research in recent years (Bengtson, 2001; Coall & Hertwig, 2011). With regard to personality development, the transition to grandparenthood has been posited as an important developmental task in old age (Hutteman et al., 2014). However, empirical research into the psychological consequences of becoming a grandparent is sparse. Testing hypotheses derived from neo-socioanalytic theory (Roberts & Wood, 2006) in a prospective matched control-group design (see Luhmann et al., 2014), we investigate whether the transition to grandparenthood affects the Big Five personality traits and life satisfaction using data from two nationally representative panel studies.

Personality Development in Middle Adulthood and Old Age

The life span perspective characterizes aging as a lifelong process of development and adaptation (Baltes et al., 2006). In accordance with this perspective, research has found personality traits to be subject to change throughout the entire life span (Costa et al., 2019; Graham et al., 2020; Specht, 2017; Specht et al., 2014; for recent reviews, see Bleidorn et al., 2021; Roberts & Yoon, 2021). Although a major portion of personality development takes place in adolescence and emerging adulthood (Bleidorn & Schwaba,

2017; Schwaba & Bleidorn, 2018), evidence has accumulated that personality traits also undergo changes in middle and old adulthood (e.g., Allemand et al., 2008; Damian et al., 2019; Kandler et al., 2015; Lucas & Donnellan, 2011; Mõttus et al., 2012; Mueller et al., 2016; Wagner et al., 2016; for a review, see Specht, 2017).

Here, we examine the Big Five personality traits—agreeableness, conscientiousness, extraversion, neuroticism, and openness to experiences—which constitute a broad categorization of universal patterns of thought, affect, and behavior (John et al., 2008). While the policy relevance of the Big Five personality traits has recently been emphasized (Bleidorn et al., 2019)—especially because of their predictive power regarding many important life outcomes (Ozer & Benet-Martínez, 2005; Roberts et al., 2007; Soto, 2021, 2019), we acknowledge that there are other viable taxonomies of personality (Ashton & Lee, 2007, 2020) and other levels of breadth and scope that could add valuable insights to personality development in middle adulthood and old age (Mõttus et al., 2017; Mõttus & Rozgonjuk, 2021).

Changes over time in the Big Five occur both in mean trait levels (i.e., mean-level change; Roberts et al., 2006) and in the relative ordering of people to each other on trait dimensions (i.e., rank-order stability; Anusic & Schimmack, 2016; Roberts & DelVecchio, 2000). No observed changes in mean trait levels do not necessarily mean that individual trait levels are stable over time, and perfect rank-order stability does not preclude mean-level changes. Mean-level changes in middle adulthood (ca. 30–60 years old; Hutteman et al., 2014) are typically characterized in terms of greater maturity as evidenced by increased agreeableness and conscientiousness, and decreased neuroticism (Damian et al., 2019; Roberts et al., 2006). In old age (ca. 60 years and older; Hutteman et al., 2014), research is generally more sparse but there is some evidence for a reversal of the maturity effect, especially following retirement (sometimes termed *la dolce vita* effect; Asselmann & Specht, 2021; Marsh et al., 2013; cf. Schwaba & Bleidorn, 2019) and at the end of life in ill health (Wagner et al., 2016).

In terms of rank-order stability, some prior studies have shown support for an inverted U-shape trajectory (Ardelt, 2000; Lucas & Donnellan, 2011; Specht et al., 2011; Wortman et al., 2012): Rank-order stability rises until reaching a plateau in midlife, and decreases, again, in old age. However, evidence is mixed whether rank-order stability actually decreases again in old age (see Costa et al., 2019). Nonetheless, the historical view that personality is stable, or "set like plaster" (Specht, 2017, p. 64) after one reaches adulthood (or leaves emerging adulthood behind; Bleidorn & Schwaba, 2017) can largely be abandoned (Specht et al., 2014).

Theories explaining the mechanisms of personality development in middle adulthood and old age emphasize both genetic influences and life experiences as interdependent sources of stability and change (Specht et al., 2014; Wagner et al., 2020). In a behavior-genetic twin study, Kandler et al. (2015) found that non-shared environmental factors were the main source of personality plasticity in old age. Here, we conceptualize the transition to grandparenthood as a life experience that offers the adoption of a new social role according to the social investment principle of neo-socioanalytic theory (Lodi-Smith & Roberts, 2007; Roberts & Wood, 2006). According to the social investment principle, normative life events or transitions such as entering the work force or becoming a parent lead to personality maturation through the adoption of new social roles (Roberts et al., 2005). These new roles encourage or compel people to act in a more agreeable, conscientious, and emotionally stable (i.e., less neurotic) way, and the experiences in these roles as well as societal expectations towards them are hypothesized to drive long-term personality development (Lodi-Smith & Roberts, 2007; Wrzus & Roberts, 2017). Conversely, consistent social roles foster personality stability.

The paradoxical theory of personality coherence (Caspi & Moffitt, 1993) offers another explanation for personality development through role shifts stating that trait change is more likely whenever people transition into unknown environments where pre-existing behavioral responses are no longer appropriate and societal norms or social

expectations give clear indications how to behave instead. On the other hand, stability is favored in environments where no clear guidance how to behave is available. Thus, the finding that age-graded, normative life experiences, such as the transition to grandparenthood, drive personality development would also be in line with the paradoxical theory of personality coherence (see Specht et al., 2014). Compared to the transition to parenthood, however, societal expectations on how grandparents should behave (e.g., "Grandparents should help parents with childcare if needed") are less clearly defined and strongly dependent on the degree of (possible) grandparental investment (Lodi-Smith & Roberts, 2007). Thus, societal expectations and role demands might differ depending on how close grandparents live to their children, the quality of the relationship with their children, and other sociodemographic factors that exert conflicting role demands (Bordone et al., 2017; Lumsdaine & Vermeer, 2015; Silverstein & Marenco, 2001; cf. Muller & Litwin, 2011). In the whole population of first-time grandparents this diversity of role investment might generate pronounced interindividual differences in intraindividual personality change.

Empirically, certain life events such as the first romantic relationship (Wagner et al., 2015) or the transition from high school to university or the first job (Asselmann & Specht, 2021; Lüdtke et al., 2011) have (partly) been found to be accompanied by mean-level increases in line with the social investment principle (for a review, see Bleidorn et al., 2018). However, recent evidence regarding the transition to parenthood failed to empirically support the social investment principle (Asselmann & Specht, 2020; van Scheppingen et al., 2016). An analysis of monthly trajectories of the Big Five before and after nine major life events only found limited support for the social investment principle: small increases were found in emotional stability following the transition to employment but not for the other traits or for the other life events theoretically linked to social investment (Denissen et al., 2019). Recently, it has also been emphasized that effects of life events on the Big Five personality trends generally tend to be small and need to be properly analyzed using robust, prospective designs, and appropriate control groups

(Bleidorn et al., 2018; Luhmann et al., 2014).

Overall, much remains unknown regarding the environmental factors underlying personality development in middle adulthood and old age. One indication that age-graded, normative life experiences contribute to change following a period of relative stability in midlife is offered by recent research on retirement (Bleidorn & Schwaba, 2018; Schwaba & Bleidorn, 2019). These results were only partly in line with the social investment principle in terms of mean-level changes and displayed substantial individual differences in change trajectories. The authors discuss that as social role "divestment" (Schwaba & Bleidorn, 2019, p. 660) retirement functions differently compared to social investment in the classical sense which adds a role. The transition to grandparenthood could represent such an investment into a new role in middle adulthood and old age—given that grandparents have regular contact with their grandchild and actively take part in childcare to some degree (i.e., invest psychologically in the new grandparent role; Lodi-Smith & Roberts, 2007).

Grandparenthood

The transition to grandparenthood, that is, the birth of the first grandchild, can be described as a time-discrete life event marking the beginning of one's status as a grandparent (Luhmann et al., 2012). In terms of characteristics of major life events (Luhmann et al., 2020), the transition to grandparenthood stands out in that it is externally caused (by one's own children; see also Arpino, Gumà, et al., 2018; Margolis & Verdery, 2019), while at the same time being predictable as soon as one's children reveal their pregnancy or family planning. The transition to grandparenthood has been labeled a countertransition due to this lack of direct control over if and when someone has their first grandchild (Hagestad & Neugarten, 1985; as cited in Arpino, Gumà, et al., 2018). Grandparenthood is also generally positive in valence and emotionally significant—given one maintains a good relationship with their child.

Grandparenthood can also be characterized as a developmental task (Hutteman et

al., 2014) mostly associated with the period of (early) old age—although considerable variation in the age at the transition to grandparenthood exists both within and between cultures (Leopold & Skopek, 2015; Skopek & Leopold, 2017). Still, the period where parents on average experience the birth of their first grandchild coincides with the end of (relative) stability in terms of personality development in midlife (Specht, 2017), where retirement, shifting social roles, and initial cognitive and health declines can be disruptive to life circumstances putting personality development into motion (e.g., Mueller et al., 2016; Stephan et al., 2014). As a developmental task, grandparenthood is expected to be part of a normative sequence of aging that is subject to societal expectations and values differing across cultures and historical time (Baltes et al., 2006; Hutteman et al., 2014).

Mastering developmental tasks (i.e., fulfilling roles and expectations to a high degree) is hypothesized to drive personality development towards maturation similarly to propositions by the social investment principle, that is, leading to higher levels of agreeableness and conscientiousness, and lower levels of neuroticism (Roberts et al., 2005; Roberts & Wood, 2006). In comparison to the transition to parenthood which has been found to be ambivalent in terms of both personality maturation and life satisfaction (Aassve et al., 2021; Johnson & Rodgers, 2006; Krämer & Rodgers, 2020; van Scheppingen et al., 2016), Hutteman et al. (2014) hypothesize that the transition to grandparenthood is generally seen as positive because it (usually) does not impose the stressful demands of daily childcare on grandparents. Grandparental investment in their grandchildren has been discussed as beneficial in terms of the evolutionary, economic, and sociological advantages it provides for the whole intergenerational family structure (Coall et al., 2018; Coall & Hertwig, 2011).

While we could not find prior studies investigating development of the Big Five over the transition to grandparenthood, there is some evidence on changes in life satisfaction over the transition to grandparenthood. In cross-sectional studies, the preponderance of evidence suggests that grandparents who provide grandchild care or have close

relationships with their older grandchildren have higher life satisfaction (e.g., Mahne & Huxhold, 2014; Triadó et al., 2014). There are a few longitudinal studies, albeit they offer conflicting conclusions: Data from the Survey of Health, Ageing and Retirement in Europe (SHARE) showed that the birth of a grandchild was followed by improvements to quality of life and life satisfaction, but only among women (Tanskanen et al., 2019) and only in first-time grandmothers via their daughters (Di Gessa et al., 2019). Several studies emphasized that grandparents actively involved in childcare experienced larger increases in life satisfaction (Arpino, Bordone, et al., 2018; Danielsbacka et al., 2019; Danielsbacka & Tanskanen, 2016). On the other hand, fixed effects regression models[1] using SHARE data did not find any effects of first-time grandparenthood on life satisfaction regardless of grandparental investment and only minor decreases of grandmothers' depressive symptoms (Sheppard & Monden, 2019).

In a similar vein, some prospective studies reported beneficial effects of the transition to grandparenthood and of grandparental childcare investment on various health measures, especially in women (Chung & Park, 2018; Condon et al., 2018; Di Gessa et al., 2016a, 2016b). Again, beneficial effects on self-rated health did not persevere in fixed effects analyses as reported in Ates (2017) who used longitudinal data from the German Aging Survey (DEAS).

We are not aware of any study investigating the rank-order stability of traits over the transition to grandparenthood. The occurrence of other life events has been shown to be associated with the rank-order stability of personality and well-being, although only for certain events and traits (e.g., Denissen et al., 2019; Hentschel et al., 2017; Specht et al., 2011).

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[1] Fixed effects regression models exclusively rely on within-person variance (see Brüderl & Ludwig, 2015; McNeish & Kelley, 2019).

Current Study

In the current study, we revisit the development of life satisfaction across the transition to grandparenthood. We extend this research to psychological development in a more general sense by examining the development of Big Five personality traits. Three research questions motivate the current study which is the first to analyze Big Five personality development over the transition to grandparenthood:

1. What are the effects of the transition to grandparenthood on mean-level trajectories of the Big Five traits and life satisfaction?
2. How large are interindividual differences in intraindividual change for the Big Five traits and life satisfaction over the transition to grandparenthood?
3. How does the transition to grandparenthood affect rank-order stability of the Big Five traits and life satisfaction?

To address these questions, we compare development over the transition to grandparenthood with that of matched participants who do not experience the transition during the study period (Luhmann et al., 2014). This is necessary because pre-existing differences between prospective grandparents and non-grandparents in variables related to the development of the Big Five or life satisfaction introduce confounding bias when estimating the effects of the transition to grandparenthood (VanderWeele et al., 2020). The impact of adjusting (or not adjusting) for pre-existing differences, or background characteristics, has recently been emphasized in the prediction of life outcomes from personality in a mega-analytic framework of ten large panel studies (Beck & Jackson, 2021). Propensity score matching is one technique to account for confounding bias by equating the groups in their estimated propensity to experience the event in question (Thoemmes & Kim, 2011). This propensity is calculated from regressing the so-called treatment variable (i.e., the group variable indicating whether someone experienced the event) on covariates related to the likelihood of experiencing the event and to the

outcomes. This approach addresses confounding bias by creating balance between the groups in the covariates used to calculate the propensity score (Stuart, 2010).

We adopt a prospective design that tests the effects of becoming first-time grandparents separately against two propensity-score-matched control groups: first, a matched control group of parents (but not grandparents) with at least one child in reproductive age, and, second, a matched control group of nonparents. Adopting two control groups allows us to disentangle potential effects attributable to becoming a grandparent from effects attributable to being a parent already, thus addressing selection effects into grandparenthood and confounding more comprehensively than previous research. Thereby, we cover the first two of the three causal pathways to not experiencing grandparenthood pointed out by demographic research (Margolis & Verdery, 2019): one's own childlessness, childlessness of one's children, and not living long enough to become a grandparent. Our comparative design also controls for average age-related and historical trends in the Big Five traits and life satisfaction (Luhmann et al., 2014), and enables us to report effects of the transition to grandparenthood unconfounded by instrumentation effects, which describe the tendency of reporting lower well-being scores with each repeated measurement (Baird et al., 2010).[2]

We improve upon previous longitudinal studies utilizing matched control groups (e.g., Anusic et al., 2014a, 2014b; Yap et al., 2012) in that we performed the matching at a specific time point preceding the transition to grandparenthood (at least two years beforehand) and not based on individual survey years. This design choice ensures that the covariates involved in the matching procedure are not already influenced by the event or anticipation of it (Greenland, 2003; Rosenbaum, 1984; VanderWeele, 2019; VanderWeele et al., 2020), thereby reducing the risk of confounding through collider bias (Elwert & Winship, 2014). Similar approaches in the study of life events have recently been adopted

[2] Instrumentation effects caused by repeated assessments have only been described for life satisfaction but we assume similar biases exist for certain Big Five items.

(Balbo & Arpino, 2016; Krämer & Rodgers, 2020; van Scheppingen & Leopold, 2020).

Informed by the social investment principle and previous research on personality development in middle adulthood and old age, we preregistered the following hypotheses (prior to data analysis; https://osf.io/a9zpc/):

- H1a: Following the birth of their first grandchild, grandparents increase in agreeableness and conscientiousness, and decrease in neuroticism compared to the matched control groups of parents (but not grandparents) and nonparents. We do not expect the groups to differ in their trajectories of extraversion and openness to experience.
- H1b: Grandparents' post-transition increases in agreeableness and conscientiousness, and decreases in neuroticism are more pronounced among those who provide substantial grandchild care.
- H1c: Grandmothers increase in life satisfaction following the transition to grandparenthood as compared to the matched control groups but grandfathers do not.
- H2: Individual differences in intraindividual change in the Big Five and life satisfaction are larger in the grandparent group than the control groups.
- H3: Compared to the matched control groups, grandparents' rank-order stability of the Big Five and life satisfaction over the transition to grandparenthood is smaller.

Exploratorily, we further probe the moderator performing paid work which could constitute a potential role conflict among grandparents.

Methods

Samples

To evaluate these hypotheses, we used data from two population-representative panel studies: the Longitudinal Internet Studies for the Social Sciences (LISS) panel from the Netherlands and the Health and Retirement Study (HRS) from the United States.

The LISS panel is a representative sample of the Dutch population initiated in 2008 with data collection still ongoing (Scherpenzeel, 2011; van der Laan, 2009). It is administered by CentERdata (Tilburg University, The Netherlands). Included households are a true probability sample of households drawn from the population register (Scherpenzeel & Das, 2010). While originally roughly half of invited households consented to participate, refreshment samples were drawn in order to oversample previously underrepresented groups using information about response rates and their association with demographic variables (household type, age, ethnicity; see https://www.lissdata.nl/about-panel/sample-and-recruitment/). Data collection was carried out online and participants lacking the necessary technical equipment were outfitted with it. We included yearly assessments from 2008 to 2020 from several different modules (see *Measures*) as well as data on basic demographics which was assessed on a monthly rate. For later coding of covariates from these monthly demographic data we used the first available assessment in each year.

The HRS is an ongoing longitudinal population-representative study of older adults in the US (Sonnega et al., 2014) administered by the Survey Research Center (University of Michigan, United States). Initiated in 1992 with a first cohort of individuals aged 51-61 and their spouses, the study has since been extended with additional cohorts in the 1990s (see https://hrs.isr.umich.edu/documentation/survey-design/). In addition to the HRS core interview every two years (in-person or as a telephone survey), the study has since 2006 included a leave-behind questionnaire covering a broad range of psychosocial topics including the Big Five personality traits and life satisfaction. These topics, however, were only administered every four years starting in 2006 for one half of the sample and in 2008 for the other half. We included personality data from 2006 to 2018, all available data for the coding of the transition to grandparenthood from 1996 to 2018, as well as covariate data from 2006 to 2018 including variables drawn from the Imputations File and the Family Data (only available up to 2014).

These two panel studies provided the advantage that they contained several waves of personality data as well as information on grandparent status and a broad range of covariates at each wave. While the HRS provided a large sample with a wider age range, the LISS panel was smaller and younger[3] but provided more frequent personality assessments spaced every one to two years. Note that M. van Scheppingen has previously used the LISS panel to analyze correlated changes between life satisfaction and Big Five traits across the lifespan (https://osf.io/3cxuy/). W. Chopik and M. van Scheppingen have previously used the HRS to analyze Big Five traits and relationship-related constructs (van Scheppingen et al., 2019). W. Chopik has additionally used the HRS to analyze mean-level and rank-order changes in Big Five traits in response to bereavement (Chopik, 2018) and other relationship-related or non-Big Five-related constructs (e.g., optimism; Chopik et al., 2020). These publications do not overlap with the current study in the central focus of grandparenthood.[4] The present study used de-identified archival data in the public domain, and, thus, it was not necessary to obtain ethical approval from an IRB.

Measures

Personality

In the LISS panel, the Big Five personality traits were assessed using the 50-item version of the IPIP Big-Five Inventory scales (Goldberg, 1992). For each Big Five trait, ten 5-point Likert-scale items were answered (1 = *very inaccurate*, 2 = *moderately inaccurate*, 3 = *neither inaccurate nor accurate*, 4 = *moderately accurate*, 5 = *very accurate*). Example items included "Like order" (conscientiousness), "Sympathize with others' feelings" (agreeableness), "Worry about things" (neuroticism), "Have a vivid imagination" (openness

[3] The reason for the included grandparents from the LISS panel being younger was that grandparenthood questions were part of the *Work and Schooling* module and—for reasons unknown to us—filtered to participants performing paid work. Thus, older, retired first-time grandparents from the LISS panel could not be identified.

[4] Publications using LISS panel data can be searched at https://www.dataarchive.lissdata.nl/publications/. Publications using HRS data can be searched at https://hrs.isr.umich.edu/publications/biblio/.

to experience), and "Start conversations" (extraversion). At each wave, we took a participant's mean of each subscale as their trait score. Internal consistencies at the time of matching, as indicated by McDonald's ω (McNeish, 2018), averaged $\omega = 0.83$ over all traits ranging from $\omega = 0.77$ (conscientiousness in the parent control group) to $\omega = 0.90$ (extraversion in the nonparent control group). Other studies have shown measurement invariance for these scales across time and age groups, and convergent validity with the Big Five inventory (BFI-2) (Denissen et al., 2020; Schwaba & Bleidorn, 2018). The Big Five (and life satisfaction) were contained in the *Personality* module which was administered yearly but with planned missingness in some years for certain cohorts (see Denissen et al., 2019). Thus, there are one to two years between included assessments, given no other sources of missingness.

In the HRS, the Midlife Development Inventory (MIDI) scales were administered to measure the Big Five (Lachman & Weaver, 1997). This instrument was constructed for use in large-scale panel studies of adults and consisted of 26 adjectives (five each for conscientiousness, agreeableness, and extraversion, four for neuroticism, and seven for openness to experience). Participants were asked to rate on a 4-point scale how well each item described them (1 = *a lot*, 2 = *some*, 3 = *a little*, 4 = *not at all*). Example adjectives included "Organized" (conscientiousness), "Sympathetic" (agreeableness), "Worrying" (neuroticism), "Imaginative" (openness to experience), and "Talkative" (extraversion). For better comparability with the LISS panel, we reverse scored all items so that higher values corresponded to higher trait levels and, at each wave, took the mean of each subscale as the trait score. Big Five trait scores showed satisfactory internal consistencies at the time of matching which averaged $\omega = 0.75$ over all traits ranging from $\omega = 0.68$ (conscientiousness in the nonparent control group) to $\omega = 0.81$ (agreeableness in the nonparent control group).

Life Satisfaction

In both samples, life satisfaction was assessed using the 5-item Satisfaction with Life Scale (SWLS; Diener et al., 1985) which participants answered on a 7-point Likert scale (1 = *strongly disagree*, 2 = *somewhat disagree*, 3 = *slightly disagree*, 4 = *neither agree or disagree*, 5 = *slightly agree*, 6 = *somewhat agree*, 7 = *strongly agree*)[5]. An example item was "I am satisfied with my life". Internal consistency at the time of matching was ω = 0.90 in the LISS panel with the parent control sample (ω = 0.88 with the nonparent control sample), and ω = 0.91 in the HRS with the parent control sample (ω = 0.91 with the nonparent control sample).

Transition to Grandparenthood

The procedure to obtain information on grandparents' transition to grandparenthood generally followed the same steps in both samples. The items this coding was based on, however, differed slightly: In the LISS panel, participants were asked "Do you have children and/or grandchildren?" with "children", "grandchildren", and "no children or grandchildren" as possible answer categories. This question was part of the *Work and Schooling* module and filtered to participants performing paid work. In the HRS, all participants were asked for the total number of grandchildren: "Altogether, how many grandchildren do you (or your husband / wife / partner, or your late husband / wife / partner) have? Include as grandchildren any children of your (or your [late] husband's / wife's / partner's) biological, step- or adopted children".[6]

In both samples, we tracked grandparenthood status (0 = *no grandchildren*, 1 = *at least one grandchild*) over time. Due to longitudinally inconsistent data in some cases, we included in the grandparent group only participants with exactly one transition from 0 to 1 in this grandparenthood status variable, and no transitions backwards (see Fig. SX). We

[5] In the LISS panel, the "somewhat" was omitted and instead of "or" "nor" was used.

[6] The listing of biological, step-, or adopted children has been added since wave 2006.

marked participants who continually indicated that they had no grandchildren as potential members of the control groups.

Moderators

Based on insights from previous research, we tested three variables as potential moderators of the mean-level trajectories of the Big Five and life satisfaction over the transition to grandparenthood: First, we analyzed whether gender acted as a moderator as indicated by research on life satisfaction (see Tanskanen et al., 2019; Di Gessa et al., 2019). We coded a dummy variable indicating female gender (0 = *male*, 1 = *female*).

Second, we tested whether performing paid work or not was associated with divergent trajectories of the Big Five and life satisfaction (see Schwaba & Bleidorn, 2019). Since the LISS subsample of grandparents we identified was based exclusively on participants performing paid work, we performed these analyses only in the HRS subsample. This served two purposes: to test how participants involved in the workforce (even if officially retired) differed from those not working, which might shed light on role conflict and have implications for the social investment mechanisms we described earlier. As a robustness check, these moderation tests also allowed us to assess whether potential differences in the main results between the LISS and HRS samples could be accounted for by including performing paid work as a moderator in analyses of the HRS sample. In other words, perhaps the results in the HRS participants performing paid work are similar to those seen in the LISS sample, which had already been conditioned on this variable through filtering in the questionnaire.

Third, we examined how involvement in grandchild care moderated trajectories of the Big Five and life satisfaction in grandparents after the transition to grandparenthood (see Arpino, Bordone, et al., 2018; Danielsbacka et al., 2019; Danielsbacka & Tanskanen, 2016). We coded a dummy variable (0 = *provided less than 100 hours of grandchild care*, 1 = *provided 100 or more hours of grandchild care*) as a moderator based on the question

"Did you (or your [late] husband / wife / partner) spend 100 or more hours in total since the last interview / in the last two years taking care of grand- or great grandchildren?".[7] This information was only available for grandparents in the HRS; in the LISS panel, too few participants answered follow-up questions on intensity of care to be included in the analyses (<50 in the final analysis sample).

Procedure

Drawing on all available data, three main restrictions defined the final analysis samples of grandparents (see Fig. SX for participant flowcharts): First, we identified participants who indicated having grandchildren for the first time during study participation (see *Measures*; $N_{LISS} = 337$; $N_{HRS} = 3272$, including HRS waves 1996-2004 before personality assessments were introduced). Second, we restricted the sample to participants with at least one valid personality assessment (valid in the sense that at least one of the six outcomes was non-missing; $N_{LISS} = 335$; $N_{HRS} = 1702$).[8] Third, we included only participants with both a valid personality assessment before and one after the transition to grandparenthood ($N_{LISS} = 253$; $N_{HRS} = 859$). Lastly, few participants were excluded because of inconsistent or missing information regarding their children[9] resulting in the final analysis samples of first-time grandparents, $N_{LISS} = 250$ (53.60% female; age at transition to grandparenthood $M = 57.94$, $SD = 4.87$) and $N_{HRS} = 846$ (54.85% female; age at transition to grandparenthood $M = 61.80$, $SD = 6.88$).

To disentangle effects of the transition to grandparenthood from effects of being a parent, we defined two pools of potential control subjects to be involved in the matching

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[7] Although dichotomization of a continuous construct (hours of care) is not ideal for moderation analysis (MacCallum et al., 2002), there were too many missing values in the variable assessing hours of care continuously (variables *E063).

[8] For the HRS subsample, we also excluded $N = 30$ grandparents in a previous step who reported unrealistically high numbers of grandchildren (> 10) in their first assessment following the transition to grandparenthood.

[9] We opted not to use multiple imputation for these child-related variables such as number of children which defined the control groups and were also later used for computing the propensity scores.

procedure: The first pool of potential control subjects comprised parents who had at least one child in reproductive age (defined as $15 \leq age_{firstborn} \leq 65$) but no grandchildren throughout the observation period ($N_{LISS} = 844$ with 3040 longitudinal observations; $N_{HRS} = 1485$ with 2703 longitudinal observations). The second pool of potential matches comprised participants who reported being childless throughout the observation period ($N_{LISS} = 1077$ with 4337 longitudinal observations; $N_{HRS} = 1340$ with 2346 longitudinal observations). The two control groups were, thus, by definition mutually exclusive.

In order to match each grandparent with the control participant who was most similar in terms of the included covariates we utilized propensity score matching.

Covariates

For propensity score matching, we used a broad set of covariates (VanderWeele et al., 2020) covering participants' demographics (e.g., education), economic situation (e.g., income), and health (e.g., mobility difficulties). We also included the pre-transition outcome variables as covariates—as recommended in the literature (Cook et al., 2020; Hallberg et al., 2018; Steiner et al., 2010; VanderWeele et al., 2020), as well as the panel wave participation count and assessment year in order to control for instrumentation effects and historical trends (e.g., 2008/2009 financial crisis; Baird et al., 2010; Luhmann et al., 2014). For matching grandparents with the parent control group we additionally included as covariates variables containing information on fertility and family history (e.g., number of children, age of first three children) which were causally related to the timing of the transition to grandparenthood (i.e., entry into treatment; Arpino, Gumà, et al., 2018; Margolis & Verdery, 2019).

Covariate selection has seldom been explicitly discussed in previous longitudinal studies estimating treatment effects of life events (e.g., in matching designs). We see two (in part conflicting) traditions that address covariate selection: First, classical recommendations from psychology argue to include all available variables that are

associated with both the treatment assignment process (i.e., selection into treatment) and the outcome (e.g., Steiner et al., 2010; Stuart, 2010). Second, recommendations from a structural causal modeling perspective (see Elwert & Winship, 2014; Rohrer, 2018) are more cautious aiming to avoid pitfalls such as conditioning on a pre-treatment collider (collider bias) or a mediator (overcontrol bias). Structural causal modeling, however, requires advanced knowledge of the causal structures underlying all involved variables (Pearl, 2009).

In selecting covariates, we followed guidelines laid out by VanderWeele et al. (2019; 2020) which reconcile both views and offer practical guidance[10] when complete knowledge of the underlying causal structures is unknown: These authors propose a "modified disjunctive cause criterion" (VanderWeele, 2019, p. 218) recommending to select all available covariates which are assumed to be causes of the outcomes, treatment exposure (i.e., the transition to grandparenthood), or both, as well as any proxies for an unmeasured common cause of the outcomes and treatment exposure. To be excluded from this selection are variables assumed to be instrumental variables (i.e., assumed causes of treatment exposure that are unrelated to the outcomes except through the exposure) and collider variables (Elwert & Winship, 2014). Because all covariates we used for matching were measured at least two years before the birth of the grandchild, we judge the risk of introducing collider bias or overcontrol bias by controlling for these covariates to be relatively small. In addition, as mentioned in the *Introduction*, the event transition to grandparenthood is not planned by or under direct control of grandparents which further reduces the risk of bias introduced by controlling for pre-treatment colliders.

An overview of the variables we used to compute the propensity scores for matching can be found in the Supplemental Material (see also Tables S5 & S6). Critically, we also provide justification for each covariate on whether we assume it to be causally related to

[10] Practical considerations of covariate selection when using large archival datasets (i.e., with no direct control over data collection) are discussed in VanderWeele et al. (2020).

treatment assignment, the outcomes, or both. We tried to find substantively equivalent covariates in both samples but had to compromise in a few cases (e.g., children's educational level only in HRS vs. children living at home only in LISS).

Estimating propensity scores requires complete covariate data. Therefore, before computing propensity scores, we performed multiple imputations in order to account for missingness in our covariates (Greenland & Finkle, 1995). Using five imputed data sets computed by classification and regression trees (CART; Burgette & Reiter, 2010) in the *mice* R package (van Buuren & Groothuis-Oudshoorn, 2011), we predicted treatment assignment (i.e., the transition to grandparenthood) five times per observation in logistic regressions with a logit link function.[11] We averaged these five scores per observation to compute the final propensity score to be used for matching (Mitra & Reiter, 2016). We used imputed data only for propensity score computation and not in later analyses because missing data in the outcome variables due to nonresponse was negligible.

Propensity Score Matching

Propensity score matching was performed in a grandparent's survey year which preceded the year when the transition was first reported by at least two years (aside from that choosing the smallest available gap between matching and transition). This served the purpose to ensure that the covariates used for matching were not affected by the event itself or its anticipation (i.e., when one's child was already pregnant with their first child; Greenland, 2003; Rosenbaum, 1984; VanderWeele et al., 2020). Propensity score matching was performed using the *MatchIt* R package (Ho et al., 2011) with exact matching on gender combined with Mahalanobis distance matching on the propensity score. In total, four matchings were performed; two per sample (LISS; HRS) and two per control group (parents but not grandparents; nonparents). We matched 1:4 with replacement because of

[11] In these logistic regressions we included all covariates listed above as predictors except for *female* which was later used for exact matching and health-related covariates in LISS-wave 2014 which were not assessed in that wave.

the relatively small pools of available non-grandparent controls. This meant that each grandparent was matched with four control observations in each matching procedure, and that control observations were allowed to be used multiple times for matching (i.e., duplicated in the analysis samples[12]). We did not specify a caliper because our goal was to find matches for all grandparents, and because we achieved satisfactory covariate balance this way.

We evaluated the matching procedure in terms of covariate balance and, graphically, in terms of overlap of the distributions of the propensity scores and (non-categorical) covariates (Stuart, 2010). Covariate balance as indicated by the standardized difference in means between the grandparent and the controls after matching was satisfactory (see Tables S5 & S6) lying below 0.25 as recommended in the literature (Stuart, 2010), and below 0.10 with few exceptions (Austin, 2011). Graphically, differences between the distributions of the propensity score and the covariates were also small and indicated no missing overlap (see Fig. SX).

After matching, each matched control observation received the same value as their matched grandparent in the *time* variable describing the temporal relation to treatment, and the control subject's other longitudinal observations were centered around this matched observation. Thereby, we coded a counterfactual transition time frame for each control subject. Due to left- and right-censored longitudinal data (i.e., panel entry or attrition), we restricted the final analysis samples to six years before and six years after the transition as shown in Table S2. We analyzed unbalanced panel data where not every participant provided all person-year observations. The final LISS analysis samples, thus, contained 250

[12] In the LISS data, 250 grandparent observations were matched with 1000 control observations (matching with replacement); these control observations corresponded to 523 unique person-year observations stemming from 270 unique participants for the parent control group, and to 464 unique person-year observations stemming from 189 unique participants for the nonparent control group. In the HRS data, 846 grandparent observations were matched with 3384 control observations (matching with replacement); these control observations corresponded to 1393 unique person-year observations stemming from 982 unique participants for the parent control group, and to 1008 unique person-year observations stemming from 704 unique participants for the nonparent control group.

grandparents with 1368 longitudinal observations, matched with 1000 control subjects with either 5167 (parent control group) or 5340 longitudinal observations (nonparent control group). The final HRS analysis samples contained 846 grandparents with 2262 longitudinal observations, matched with 3384 control subjects with either 8257 (parent control group) or 8167 longitudinal observations (nonparent control group; see Table S2. In the HRS, there were a few additional missing values in the outcomes ranging from 18 to 105 longitudinal observations which will be listwise deleted in the respective analyses.

Analytical Strategy

We used R (Version 4.0.4; R Core Team, 2021) and the R-packages *lme4* (Version 1.1.26; Bates et al., 2015), and *lmerTest* (Version 3.1.3; Kuznetsova et al., 2017) for multilevel modeling, as well as *tidyverse* (Wickham et al., 2019) for data wrangling, and *papaja* (Aust & Barth, 2020) for reproducible manuscript production. Additional modeling details and a list of all software we used is provided in the Supplemental Material. Scripts for data wrangling, analyses, and to reproduce this manuscript can be found on the OSF (https://osf.io/75a4r/?view_only=ac929a2c41fb4afd9d1a64a3909848d0) and on GitHub ([blinded for review]). In line with Benjamin et al. (2018), we set the α-level for all confirmatory analyses to .005.

Our design can be referred to as an interrupted time-series with a "nonequivalent no-treatment control group" (Shadish et al., 2002, p. 182) where treatment, that is, the transition to grandparenthood, is not deliberately manipulated. First, to analyze mean-level changes, we used linear piecewise regression coefficients in multilevel regression models with person-year observations nested within participants and households (Hoffman, 2015). To model change over time in relation to the birth of the first grandchild, we coded three piecewise regression coefficients: a *before-slope* representing linear change in the years leading up to the transition to grandparenthood, an *after-slope* representing linear change in the years after the transition, and a *shift* coefficient shifting the intercept directly after

the transition was first reported, thus representing sudden changes that go beyond changes already modeled by the *after-slope* (see Table S2 for the coding scheme of these coefficients; Hoffman, 2015). Other studies of personality development have recently adopted similar piecewise growth-curve models (e.g., Bleidorn & Schwaba, 2018; Krämer & Rodgers, 2020; Schwaba & Bleidorn, 2019; van Scheppingen & Leopold, 2020).

All effects of the transition to grandparenthood on the Big Five and life satisfaction were modeled as deviations from patterns in the matched control groups by interacting the three piecewise coefficients with the binary treatment variable (0 = *control*, 1 = *grandparent*). In additional models, we interacted these coefficients with the binary moderator variables resulting in two- or three-way interactions. To test differences in the growth parameters between two groups in cases where these differences were represented by multiple fixed-effects coefficients, we defined linear contrasts using the *linearHypothesis* command from the *car* R package (Fox & Weisberg, 2019). All models of mean-level changes were estimated using maximum likelihood and included random intercepts but no random slopes of the piecewise regression coefficients. We included the propensity score as a level-2 covariate for a double-robust approach (Austin, 2017).

Second, to assess interindividual differences in intraindividual change in the Big Five and life satisfaction we added random slopes to the models assessing mean-level changes (see Denissen et al., 2019 for a similar approach). In other words, we allowed for differences between individuals in their trajectories of change to be modeled, that is, differences in the *before-slope*, *after-slope*, and *shift* coefficients. Because multiple simultaneous random slopes are often not computationally feasible, we added random slopes one at a time and used likelihood ratio test to determine whether the addition of the respective random slope led to a significant improvement in model fit. We plotted distributions of random slopes (for a similar approach, see Denissen et al., 2019; Doré & Bolger, 2018). To statistically test differences in the random slope variance between the grandparent group and each control group, we respecified the multilevel models as heterogeneous variance models using

the *nlme* R package (Pinheiro et al., 2021), which allows for separate random slope variances to be estimated in the grandparent group and the control group within the same model. Model fit of these heterogeneous variance models was compared to the corresponding models with a homogeneous (single) random slope variance via likelihood ratio tests. This was also done separately for the parent and nonparent control groups.

Third, to examine rank-order stability in the Big Five and life satisfaction over the transition to grandparenthood, we computed the test-retest correlation of measurements prior to the transition to grandparenthood (at the time of matching) with the first available measurement after the transition. To test the difference in test-retest stability between grandparents and either of the control groups, we then entered the pre-treatment measure as well as the treatment variable (0 = *control*, 1 = *grandparent*) and their interaction into multiple regression models predicting the Big Five and life satisfaction. These interactions test for significant differences in the test-retest stability between those who experienced the transition to grandparenthood and those who did not (for a similar approach, see Denissen et al., 2019; McCrae, 1993).

Results

Descriptive Results

Means and standard deviations of the Big Five and life satisfaction over the analyzed time points are presented in Tables S3 and S4. In both the LISS and the HRS, all six outcomes display marked stability over time. Standard deviations for life satisfaction are considerably larger than those of the Big Five. Intra-class correlations (see Table S1) show that for the Big Five large portions of the total variance could be explained by nesting in participants (*median* = 0.75), while nesting in households only accounted for minor portions (*median* = 0.03). For outcome–subsample combinations with an ICC_{hid} below .05 we omitted the household nesting factor from all models because this frequently lead to computational errors—a small deviation from our preregistration. For life

satisfaction the nesting in households accounted for slightly larger portions of the total variance (*median* = 0.36) than nesting in participants (*median* = 0.32). For all outcomes, the proportion of variance due to within-person factors was relatively low (*median* = 0.22).

Mean-Level Changes

Agreeableness

In the basic models (see Tables S7 & S8 and Figure S1), grandparents in the LISS increased slightly in agreeableness in the years after the transition to grandparenthood as compared to the parent controls, $\hat{\gamma}_{21} = 0.02$, 95% CI $[0.01, 0.03]$, $p = .003$. However, this effect was quite small in magnitude and not significant when compared against the nonparent controls, or against either control sample in the HRS sample (suggestive evidence in the HRS nonparents: $\hat{\gamma}_{21} = 0.02$, 95% CI $[0.01, 0.04]$, $p = .006$). The models including the gender interaction (see Tables S9 & S10 and Figure S1) suggest that this difference was due to grandfathers' post-transition increases in agreeableness as compared to parent (LISS: $\hat{\gamma}_{21} = 0.03$, 95% CI $[0.01, 0.05]$, $p < .001$; HRS: $\hat{\gamma}_{21} = 0.04$, 95% CI $[0.01, 0.06]$, $p = .003$) and nonparent controls (HRS: $\hat{\gamma}_{21} = 0.03$, 95% CI $[0.01, 0.05]$, $p = .004$).

There is only suggestive evidence for a moderation by paid work (see Tables S11 & S12 and Figure S2): non-working grandparents increased more in agreeableness than working grandparents in anticipation of the transition to grandparenthood (difference in *before* parameter; parents: $[\hat{\gamma}_{12} + \hat{\gamma}_{13}]$ = -0.07, 95% CI [-0.12, -0.01], $p = .013$; nonparents: $[\hat{\gamma}_{12} + \hat{\gamma}_{13}]$ = -0.07, 95% CI [-0.12, -0.02], $p = .009$). Grandparents providing substantial grandchild care increased in agreeableness after the transition to grandparenthood as compared to matched nonparent controls (difference in *after* parameter: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.04$, 95% CI [0.01, 0.06], $p = .002$; suggestive evidence in the parent sample: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.04$, 95% CI [0.01, 0.06], $p = .006$; see Tables S13 & S14 and Figure S3). Again, the effects are very small and the differences between caring and non-caring grandparents are not significant in either sample (see Table S14).

Conscientiousness

For conscientiousness (see Tables S15 & S16 and Figure S4), there is evidence for a slight post-transition increase in the grandparents as compared to the controls in the HRS (parents: $\hat{\gamma}_{21} = 0.02$, 95% CI $[0.01, 0.04]$, $p = .002$; nonparents: $\hat{\gamma}_{21} = 0.02$, 95% CI $[0.01, 0.04]$, $p = .003$; suggestive evidence in the LISS parent sample: $\hat{\gamma}_{21} = 0.02$, 95% CI $[0.00, 0.03]$, $p = .006$). Grandparents' conscientiousness trajectories were not significantly moderated by gender (see Tables S17 & S18 and Figure S4).

However, there were significant differences depending on grandparents' work status (see Tables S19 & S20 and Figure S5): non-working grandparents saw more pronounced increases in conscientiousness in the years before the transition to grandparenthood compared to non-working parent, $\hat{\gamma}_{11} = 0.08$, 95% CI $[0.04, 0.13]$, $p < .001$, and nonparent controls, $\hat{\gamma}_{11} = 0.07$, 95% CI $[0.03, 0.12]$, $p = .002$, and compared to working grandparents (difference in *before* parameter; parents: $[\hat{\gamma}_{12} + \hat{\gamma}_{13}]$ = -0.08, 95% CI [-0.13, -0.03], $p = .002$; nonparents: $[\hat{\gamma}_{12} + \hat{\gamma}_{13}]$ = -0.08, 95% CI [-0.12, -0.03], $p = .001$). There is suggestive evidence that grandparents who provided substantial grandchild care increased more strongly in conscientiousness after the transition compared to grandparents who did not (difference in *after* parameter; parents: $[\hat{\gamma}_{12} + \hat{\gamma}_{13}] = 0.03$, 95% CI [0.00, 0.06], $p = .034$; nonparents: $[\hat{\gamma}_{12} + \hat{\gamma}_{13}] = 0.03$, 95% CI [0.00, 0.06], $p = .022$; see Tables S21 & S22 and Figure S6).

Extraversion

The trajectories of grandparents' extraversion closely follow those of the matched controls. There are no significant effects indicating differences between grandparents and controls in the basic models (see Tables S23 & S24 and Figure S7), the models including the gender interaction (see Tables S25 & S26 and Figure S7), or the models of moderation by paid work (see Tables S27 & S28 and Figure S8). In the analysis of moderation by grandchild care (see Tables S29 & S30 and Figure S9) it can be seen that compared to

matched parent controls caring grandparents increased slightly more strongly in extraversion after the transition to grandparenthood (difference in *after* parameter: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.04$, 95% CI [0.02, 0.07], $p = .001$; suggestive evidence in the nonparent sample: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.04$, 95% CI [0.01, 0.06], $p = .007$).

Neuroticism

The basic models for neuroticism (see Tables S31 & S32 and Figure S10) only show minor differences between grandparents and matched controls. Compared to the parent controls, grandparents in the HRS shifted slightly downward in their neuroticism immediately after the transition to grandparenthood (difference in *shift* parameter: $[\hat{\gamma}_{21} + \hat{\gamma}_{31}] = -0.08$, 95% CI [-0.12, -0.03], $p < .001$). However, this was not the case in the three other samples (HRS nonparents, LISS parents, and LISS nonparents). Further, in the HRS there is suggestive evidence that grandparents increased in neuroticism before the transition to grandparenthood compared to the nonparent controls, $\hat{\gamma}_{11} = 0.04$, 95% CI $[0.01, 0.07]$, $p = .016$. The models including the gender interaction (see Tables S33 & S34 and Figure S10) only show one significant effect in the comparison of grandparents and controls: In the HRS, grandfathers, as compared to male parent controls, shifted downwards in neuroticism in the year immediately after the transition to grandparenthood (difference in *shift* parameter: $[\hat{\gamma}_{21} + \hat{\gamma}_{31}] = -0.16$, 95% CI [-0.22, -0.09], $p < .001$; suggestive evidence in the nonparent sample: $[\hat{\gamma}_{21} + \hat{\gamma}_{31}] = -0.07$, 95% CI [-0.14, -0.01], $p = .024$). There is also suggestive evidence that grandfathers in the HRS increased more strongly in neuroticism before the transition than the male controls (parent controls: $\hat{\gamma}_{11} = 0.06$, 95% CI $[0.01, 0.10]$, $p = .024$; nonparent controls: $\hat{\gamma}_{11} = 0.06$, 95% CI $[0.02, 0.11]$, $p = .007$). Thus, effects present in the basic models seem to be mostly due to differences in the grandfathers (vs. male controls).

Grandparents' trajectories of neuroticism as compared to the controls were significantly moderated by paid work (see Tables S35 & S36 and Figure S11): Compared to

working nonparent controls, working grandparents increased more strongly in neuroticism in the years before the transition to grandparenthood (difference in *before* parameter: [$\hat{\gamma}_{11}$ + $\hat{\gamma}_{13}$] = 0.06, 95% CI [0.03, 0.10], $p < .001$; suggestive evidence in the parent sample: [$\hat{\gamma}_{11}$ + $\hat{\gamma}_{13}$] = 0.05, 95% CI [0.01, 0.08], $p = .015$). At the first post-transition assessment, working grandparents shifted downward in neuroticism compared to working parent controls (difference in *shift* parameter: [$\hat{\gamma}_{21}$ + $\hat{\gamma}_{31}$ + $\hat{\gamma}_{23}$ + $\hat{\gamma}_{33}$] = -0.08, 95% CI [-0.14, -0.03], $p = .004$; suggestive evidence in the nonparent sample: [$\hat{\gamma}_{21}$ + $\hat{\gamma}_{31}$ + $\hat{\gamma}_{23}$ + $\hat{\gamma}_{33}$] = -0.06, 95% CI [-0.11, 0.00], $p = .034$). There is suggestive evidence that grandparents providing substantial grandchild care decreased more strongly in neuroticism after the transition to grandparenthood than grandparents who did not (difference in *after* parameter; parents: [$\hat{\gamma}_{12}$ + $\hat{\gamma}_{13}$] = -0.04, 95% CI [-0.07, 0.00], $p = .044$; nonparents: [$\hat{\gamma}_{12}$ + $\hat{\gamma}_{13}$] = -0.04, 95% CI [-0.07, 0.00], $p = .048$; see Tables S37 & S38 and Figure S12).

Openness

For openness, there is also a high degree of similarity between the grandparents and the matched control subjects in their trajectories based on the basic models (see Tables S39 & S40 and Figure S13) and models including the gender interaction (see Tables S41 & S42 and Figure S13). Grandparents in the HRS shifted downwards in openness in the first assessment after the transition to grandparenthood compared to the parent controls (difference in *shift* parameter: [$\hat{\gamma}_{21}$ + $\hat{\gamma}_{31}$] = -0.05, 95% CI [-0.09, -0.02], $p = .004$; suggestive evidence in the nonparent sample: [$\hat{\gamma}_{21}$ + $\hat{\gamma}_{31}$] = -0.04, 95% CI [-0.07, 0.00], $p = .039$). This effect is due to significant differences between grandfathers and male parent controls in the shift immediately after the transition (difference in *shift* parameter: [$\hat{\gamma}_{21}$ + $\hat{\gamma}_{31}$] = -0.11, 95% CI [-0.17, -0.06], $p < .001$). There is suggestive evidence that grandmothers in the LISS increased more strongly in openness before the transition to grandparenthood than female controls (difference in *before* parameter; parents: [$\hat{\gamma}_{11}$ + $\hat{\gamma}_{13}$] = 0.02, 95% CI [0.00, 0.03], $p = .036$; nonparents: [$\hat{\gamma}_{11}$ + $\hat{\gamma}_{13}$] = 0.02, 95% CI [0.00, 0.04], $p = .009$).

Performing paid work moderated grandparents' trajectories in subtle ways (see Tables S43 & S44 and Figure S14): Non-working grandparents increased more strongly in openness post-transition than non-working controls (parents: $\hat{\gamma}_{21} = 0.05$, 95% CI $[0.02, 0.07]$, $p < .001$; nonparents: $\hat{\gamma}_{21} = 0.04$, 95% CI $[0.02, 0.06]$, $p < .001$). Further, there is suggestive evidence that openness of non-working grandparents shifted downwards directly after the transition compared to non-working controls (difference in *shift* parameter; parents: $[\hat{\gamma}_{21} + \hat{\gamma}_{31}] =$ -0.09, 95% CI [-0.15, -0.02], $p = .007$; nonparents: $[\hat{\gamma}_{21} + \hat{\gamma}_{31}] =$ -0.07, 95% CI [-0.13, -0.01], $p = .014$). However, compared to non-working grandparents, working grandparents shifted upwards in openness directly after the transition (difference in *shift* parameter; parents: $[\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}] = 0.08$, 95% CI [0.00, 0.15], $p = .038$; nonparents: $[\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}] = 0.08$, 95% CI [0.01, 0.14], $p = .023$) and decreased afterwards (difference in *after* parameter; parents: $[\hat{\gamma}_{22} + \hat{\gamma}_{23}] =$ -0.04, 95% CI [-0.07, -0.01], $p = .016$; nonparents: $[\hat{\gamma}_{22} + \hat{\gamma}_{23}] =$ -0.04, 95% CI [-0.07, -0.01], $p = .007$). The analysis of moderation by grandchild care (see Tables S45 & S46 and Figure S15) reveals that grandparents providing substantial grandchild care increased more strongly in openness after the transition to grandparenthood than the matched nonparent controls (difference in *after* parameter: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.04$, 95% CI [0.01, 0.06], $p = .002$; suggestive evidence in the parent sample: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.04$, 95% CI [0.01, 0.07], $p = .005$). At the same time, a look at the plotted trajectories demonstrates that the described moderation effects for openness were all quite small.

Life Satisfaction

The basic model for life satisfaction (see Tables S47 & S48 and Figure S16) provides suggestive evidence that grandparents in the HRS increased more strongly in their life satisfaction before the transition to grandparenthood than matched parent controls, $\hat{\gamma}_{11} = 0.12$, 95% CI $[0.03, 0.21]$, $p = .010$. Grandparents in the LISS increased more strongly in life satisfaction directly after the transition compared to the nonparent controls

(difference in *shift* parameter: $[\hat{\gamma}_{21} + \hat{\gamma}_{31}] = 0.18$, 95% CI [0.06, 0.30], $p = .004$). There is evidence in the models including the gender interaction (see Tables S49 & S50 and Figure S16) that grandmothers in the LISS increased more strongly in life satisfaction directly post-transition than female nonparent controls (difference in *shift* parameter: $[\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}] = 0.24$, 95% CI [0.08, 0.41], $p = .004$). Further, grandmothers in the HRS increased in life satisfaction before the transition to grandparenthood compared to female parent controls (difference in *before* parameter: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.21$, 95% CI [0.09, 0.33], $p < .001$).

The models of the moderation by paid work give suggestive evidence that working grandparents increased in life satisfaction before the transition to grandparenthood compared to working parent controls (difference in *before* parameter: $[\hat{\gamma}_{11} + \hat{\gamma}_{13}] = 0.11$, 95% CI [0.00, 0.21], $p = .047$; see Tables S51 & S52 and Figure S17). There is no evidence for a moderation by grandchild care (see Tables S53 & S54 and Figure S18).

Interindividual Differences in Change

First, we conducted comparisons of model fit between the random-intercept models reported previously and models where a random slope variance was estimated, separately for each change parameter. These comparisons showed a substantial amount of interindividual differences in change for all random slopes in all models as indicated by increases in model fit significant at $p < .001$.

Second, we estimated models with heterogeneous random slope variances between the grandparents and each control group in order to test whether interindividual differences in change were significantly larger in the grandparents. Contrary to hypothesis H2, for agreeableness, conscientiousness, and extraversion, interindividual differences in intraindividual change were greater in the control group for all tested effects (see Tables S55, S56, & S57). In the two HRS samples, assuming group heterogeneity in the random slope variances lead to a significant improvement in model fit in all model comparisons. In

the two LISS samples, this was the case for around half the tests.

Interindividual differences in changes in neuroticism before the transition to grandparenthood (random slope variance of the *before* parameter) were significantly greater in the HRS grandparents than the nonparent controls, *likelihood ratio* = 73.45, $p < .001$. However, this was not the case in the comparison of grandparents with parent controls in the HRS or either control group in the LISS (see Table S58). The other parameters of change in neuroticism did not differ significantly between groups in their random slope variances or—in the HRS—displayed significantly larger random slope variances in the respective control group.

For openness, interindividual differences in changes before the transition to grandparenthood (random slope variance of the *before* parameter) were significantly greater in the LISS grandparents than the nonparent controls, *likelihood ratio* = 25.90, $p < .001$. Again, this result could not be replicated in the other three samples, and the other parameters of change did either not differ between groups in their random slope variances or had significantly larger random slope variances in the respective control group (see Table S59).

We found partial evidence for larger interindividual differences in grandparents' changes in life satisfaction (see Table S60): In the LISS, grandparents' changes before the transition to grandparenthood varied to a larger extent interindividually compared to the parent controls (random slope variance of the *before* parameter), *likelihood ratio* = 41.47, $p < .001$, and in the HRS compared to the nonparent controls, *likelihood ratio* = 111.97, $p < .001$. We found suggestive evidence for larger interindividual differences in grandparents' linear post-transition changes compared to the parent controls (random slope variance of the *after* parameter), *likelihood ratio* = 11.74, $p = .008$, and in sudden shifts directly after the transition was first reported (random slope variance of the *shift* parameter), *likelihood ratio* = 10.00, $p = .019$. Still, the majority of tests for heterogeneous random slope variance in life satisfaction indicated either non-significant differences or significantly larger

random slope variances in the control sample.

Rank-Order Stability

We computed test-retest correlations for the Big Five and life satisfaction for the matched sample, as well as separately for grandparents only and controls only (see Table S61). In 17 out of 24 comparisons grandparents' test-retest correlation was larger than that of the respective control group. There was only one significant difference between grandparents and matched controls in their rank-order stability, namely the rank-order stability of agreeableness in the LISS which was larger in the grandparents than the matched nonparent controls, $p = .005$. Further, we found suggestive evidence that rank-order stability in the HRS was larger in the grandparents for extraversion than in either parent, $p = .007$, or nonparent controls, $p = .029$, and that for openness it was larger in the grandparents than in the parent controls, $p = .015$. Overall, there was no evidence in support of hypothesis H3.

Discussion

Based on

- personality maturation cross-culturally: (Bleidorn et al., 2013; Chopik & Kitayama, 2018)
- facets / nuances (Mõttus & Rozgonjuk, 2021)
- arrival of grandchild associated with retirement decisions (Lumsdaine & Vermeer, 2015); pers X WB interaction over retirement (Henning et al., 2017);
- Does the Transition to Grandparenthood Deter Gray Divorce? A Test of the Braking Hypothesis (Brown et al., 2021)
- prolonged period of grandparenthood? (Margolis & Wright, 2017)

- subjective experience of aging (Bordone & Arpino, 2015)

- policy relevance of personality (Bleidorn et al., 2019), e.g., health outcomes (Turiano et al., 2012), but not really evidence for healthy neuroticism (Turiano et al., 2020)

- mortality & grandparenthood(Christiansen, 2014); moderated by race? (Choi, 2020); but see HRS -> "Grandparenthood overall was unassociated with mortality risk in both women and men" (Ellwardt et al., 2021) –> (Hilbrand et al., n.d.): "Survival analyses based on data from the Berlin Aging Study revealed that mortality hazards for grandparents who provided non-custodial childcare were 37% lower than for grandparents who did not provide childcare and for non-grandparents. These associations held after controlling for physical health, age, socioeconomic status and various characteristics of the children and grandchildren."

- "Older grandparents tended to provide financial assistance and more strongly identified with the role. When their grandchildren were younger, grandparents tended to interact more with them, share more activities, provide baby-sitting, and receive more symbolic rewards from the grandparent role." (Silverstein & Marenco, 2001)

- "refutes the central claim of role theory according to which salient roles are more beneficial to the psychological well-being of the individual than are other roles, especially in old age. It also questions the theoretical framework of grandparent role meaning that is commonly cited in the literature" (Muller & Litwin, 2011) –> see also (Condon et al., 2019): First-Time Grandparents' Role Satisfaction and Its Determinants

- "maternal grandmothers tend to invest the most in their grandchildren, followed by maternal grandfathers, then paternal grandmothers, with paternal grandfathers investing the least" -> also: call for causally informed designs! (Coall & Hertwig, 2011) –> discusses grandparental role investment from an evolutionary perspective

850 –> see also (Danielsbacka et al., 2011)

851 • factors determining grandparental investement: (Coall et al., 2014)

852 • relation to well-being: (Danielsbacka & Tanskanen, 2016)

853 • “Over the last two decades, the share of U.S. children under age 18 who live in a
854 multigenerational household (with a grandparent and parent) has increased
855 dramatically“ (Pilkauskas et al., 2020) –> for Germany:”on the basis of the DEAS
856 data, the share of grandparents who take care of their grandchildren increased
857 between 2008 and 2014" (Mahne & Klaus, 2017)

858 • other countries with different childcare systems: (Bordone et al., 2017); “in countries
859 with scarce publicly funded daycare services and parental leave grandparental care is
860 often provided on a daily basis”; (Hank & Buber, 2009)

861 • differences in Big Five assessment: HRS adjectives vs. LISS statements

862 **Limitations**

863 Despite

864 **Conclusions**

865 Our

866 **Acknowledgements**

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Supplemental Material

Supplemental Tables

Table S1

Intra-Class Correlations of Grandparents and Matched Controls in the Four Analysis Samples.

	A	C	E	N	O	LS
LISS: Parent controls						
ICC_{pid}	0.74	0.77	0.81	0.71	0.78	0.35
ICC_{hid}	0.05	0.01	0.02	0.07	0.00	0.37
$ICC_{pid/hid}$	0.79	0.78	0.83	0.78	0.78	0.71
LISS: Nonparent controls						
ICC_{pid}	0.76	0.76	0.64	0.67	0.79	0.32
ICC_{hid}	0.00	0.00	0.22	0.10	0.02	0.36
$ICC_{pid/hid}$	0.76	0.77	0.85	0.77	0.81	0.67
HRS: Parent controls						
ICC_{pid}	0.76	0.69	0.79	0.73	0.57	0.31
ICC_{hid}	0.00	0.07	0.00	0.01	0.21	0.35
$ICC_{pid/hid}$	0.76	0.76	0.79	0.74	0.78	0.67
HRS: Nonparent controls						
ICC_{pid}	0.71	0.73	0.77	0.76	0.59	0.33
ICC_{hid}	0.07	0.06	0.04	0.00	0.23	0.38
$ICC_{pid/hid}$	0.78	0.79	0.80	0.76	0.82	0.71

Note. A = agreeableness, C = conscientiousness, E = extraversion, N = neuroticism, O = openness, LS = life satisfaction. Intra-class correlations are the proportion of total variation that is explained by the respective nesting factor. ICC_{pid} is the proportion of total variance explained by nesting in participants which corresponds to the correlation between two randomly selected observations from the same participant. ICC_{hid} is the proportion of total variance explained by nesting in households which corresponds to the correlation between two randomly selected observations from the same household. $ICC_{pid/hid}$ is the proportion of total variance explained by nesting in participants and in households which corresponds to the correlation between two randomly selected observations from the same participant and the same household.

Table S2

Longitudinal sample size in the analysis samples and coding scheme for the piecewise regression coefficients.

	Pre-transition years						Post-transition years						
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
LISS: Analysis samples													
Grandparents: obs.	92	105	108	121	156	116	133	138	108	108	69	62	52
Grandparents: % women	51.09	48.57	52.78	51.24	56.41	62.93	47.37	52.90	51.85	50.00	56.52	66.13	53.85
Parent controls: obs.	335	425	381	540	740	351	450	488	333	394	365	164	201
Parent controls: % women	57.61	51.06	55.12	51.48	55.00	56.13	53.11	54.10	56.76	51.27	56.99	59.76	48.76
Nonparent controls: obs.	331	399	407	554	739	354	473	516	367	477	375	146	202
Nonparent controls: % women	52.57	54.89	57.99	52.71	55.21	54.52	49.26	54.46	52.86	52.83	54.67	48.63	51.49
LISS: Coding scheme													
Before-slope	0	1	2	3	4	5	5	5	5	5	5	5	5
After-slope	0	0	0	0	0	0	1	2	3	4	5	6	7
Jump	0	0	0	0	0	0	1	1	1	1	1	1	1
HRS: Analysis samples													
Grandparents: obs.	162		388		461		380		444		195		232
Grandparents: % women	57.41		54.12		55.53		53.95		55.41		56.41		53.45
Parent controls: obs.	619		1540		1844		1228		1504		658		864
Parent controls: % women	55.41		54.03		55.53		54.64		56.45		56.08		57.64
Nonparent controls: obs.	620		1541		1844		1205		1448		688		821
Nonparent controls: % women	56.45		54.06		55.53		56.10		58.91		57.56		60.54
HRS: Coding scheme													
Before-slope	0		1		2		2		2		2		2
After-slope	0		0		0		1		2		3		4
Jump	0		0		0		1		1		1		1

Note. obs. = observations. $time = 0$ marks the first year where the transition to grandparenthood has been reported. The number of grandparent participants is $N_{LISS} = 250$ and $N_{HRS} = 846$.

Table S3

Means and Standard Deviations of the Big Five and Life Satisfaction over Time in the LISS Panel.

	Pre-transition years						Post-transition years						
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Agreeableness													
Grandparents	3.85	3.87	3.93	3.87	3.90	3.93	3.87	3.92	3.91	3.91	3.89	4.01	3.98
	(0.52)	(0.50)	(0.46)	(0.49)	(0.54)	(0.47)	(0.49)	(0.52)	(0.52)	(0.51)	(0.52)	(0.49)	(0.37)
Parent controls	3.93	3.89	3.90	3.87	3.91	3.95	3.91	3.89	3.90	3.92	3.86	3.86	3.81
	(0.52)	(0.51)	(0.47)	(0.50)	(0.48)	(0.48)	(0.47)	(0.51)	(0.53)	(0.48)	(0.50)	(0.43)	(0.43)
Nonparent controls	3.95	3.94	3.98	3.98	3.94	3.91	3.94	3.95	3.94	3.94	3.92	3.92	3.88
	(0.47)	(0.50)	(0.45)	(0.50)	(0.49)	(0.47)	(0.44)	(0.45)	(0.46)	(0.47)	(0.41)	(0.44)	(0.42)
Conscientiousness													
Grandparents	3.76	3.84	3.74	3.75	3.77	3.79	3.77	3.78	3.75	3.79	3.84	3.74	3.76
	(0.50)	(0.45)	(0.49)	(0.46)	(0.53)	(0.48)	(0.49)	(0.51)	(0.49)	(0.51)	(0.44)	(0.48)	(0.43)
Parent controls	3.80	3.78	3.80	3.77	3.79	3.83	3.82	3.79	3.80	3.79	3.78	3.76	3.77
	(0.52)	(0.50)	(0.52)	(0.49)	(0.49)	(0.50)	(0.49)	(0.47)	(0.47)	(0.46)	(0.43)	(0.44)	(0.45)
Nonparent controls	3.77	3.79	3.76	3.80	3.74	3.75	3.77	3.72	3.82	3.81	3.78	3.84	3.80
	(0.53)	(0.50)	(0.51)	(0.50)	(0.51)	(0.53)	(0.50)	(0.50)	(0.50)	(0.51)	(0.48)	(0.46)	(0.50)
Extraversion													
Grandparents	3.23	3.20	3.31	3.32	3.28	3.30	3.19	3.24	3.22	3.19	3.33	3.34	3.19
	(0.66)	(0.74)	(0.54)	(0.58)	(0.64)	(0.57)	(0.61)	(0.69)	(0.65)	(0.60)	(0.60)	(0.58)	(0.55)
Parent controls	3.32	3.30	3.28	3.27	3.26	3.30	3.25	3.20	3.22	3.28	3.19	3.19	3.14
	(0.58)	(0.59)	(0.58)	(0.59)	(0.59)	(0.59)	(0.64)	(0.62)	(0.59)	(0.61)	(0.58)	(0.53)	(0.56)
Nonparent controls	3.31	3.27	3.21	3.32	3.32	3.28	3.30	3.27	3.31	3.31	3.28	3.13	3.26
	(0.74)	(0.70)	(0.79)	(0.75)	(0.69)	(0.70)	(0.72)	(0.73)	(0.77)	(0.78)	(0.73)	(0.75)	(0.74)
Neuroticism													
Grandparents	2.39	2.31	2.33	2.41	2.45	2.47	2.30	2.39	2.30	2.36	2.33	2.44	2.53
	(0.71)	(0.64)	(0.60)	(0.64)	(0.65)	(0.71)	(0.67)	(0.76)	(0.68)	(0.66)	(0.67)	(0.80)	(0.67)
Parent controls	2.43	2.42	2.42	2.38	2.40	2.37	2.35	2.35	2.30	2.28	2.35	2.31	2.33
	(0.59)	(0.63)	(0.56)	(0.58)	(0.58)	(0.60)	(0.63)	(0.65)	(0.56)	(0.56)	(0.60)	(0.55)	(0.56)
Nonparent controls	2.41	2.44	2.47	2.36	2.43	2.37	2.33	2.37	2.34	2.33	2.35	2.48	2.35
	(0.64)	(0.63)	(0.69)	(0.70)	(0.69)	(0.63)	(0.69)	(0.71)	(0.74)	(0.68)	(0.70)	(0.82)	(0.83)

Table S3 continued

	Pre-transition years						Post-transition years						
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Openness													
Grandparents	3.43	3.50	3.54	3.49	3.49	3.50	3.48	3.48	3.50	3.45	3.50	3.43	3.36
	(0.51)	(0.50)	(0.49)	(0.45)	(0.49)	(0.50)	(0.48)	(0.54)	(0.43)	(0.46)	(0.50)	(0.53)	(0.56)
Parent controls	3.53	3.46	3.43	3.48	3.48	3.48	3.50	3.49	3.44	3.51	3.42	3.37	3.42
	(0.52)	(0.52)	(0.50)	(0.53)	(0.51)	(0.51)	(0.52)	(0.50)	(0.48)	(0.48)	(0.49)	(0.48)	(0.42)
Nonparent controls	3.53	3.57	3.53	3.58	3.52	3.51	3.52	3.55	3.54	3.59	3.53	3.51	3.51
	(0.52)	(0.51)	(0.51)	(0.52)	(0.52)	(0.51)	(0.51)	(0.51)	(0.52)	(0.51)	(0.50)	(0.47)	(0.53)
Life satisfaction													
Grandparents	5.18	5.29	5.23	5.16	5.28	5.24	5.31	5.24	5.37	5.38	5.39	5.25	5.15
	(1.06)	(0.93)	(1.13)	(0.95)	(0.93)	(1.10)	(0.93)	(1.03)	(1.09)	(0.90)	(1.10)	(1.10)	(1.00)
Parent controls	5.21	5.30	5.26	5.23	5.28	5.29	5.36	5.25	5.26	5.45	5.33	5.40	5.41
	(1.11)	(1.03)	(1.01)	(0.97)	(1.01)	(1.07)	(0.99)	(1.03)	(1.04)	(0.93)	(1.04)	(1.05)	(1.05)
Nonparent controls	5.27	5.19	5.10	5.21	5.26	5.18	5.24	5.09	5.10	5.07	5.23	4.98	5.19
	(0.92)	(0.87)	(0.90)	(0.92)	(0.95)	(0.90)	(0.96)	(1.04)	(1.12)	(1.13)	(1.08)	(1.30)	(1.18)

Note. Standard deviations shown in brackets; $time = 0$ marks the first year where the transition to grandparenthood was reported.

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Table S4

Means and Standard Deviations of the Big Five and Life Satisfaction over Time in the HRS.

	Pre-transition years						Post-transition years						
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Agreeableness													
Grandparents	3.46		3.51		3.51		3.52		3.52		3.50		3.56
	(0.47)		(0.48)		(0.49)		(0.49)		(0.48)		(0.53)		(0.44)
Parent controls	3.50		3.48		3.50		3.49		3.49		3.44		3.47
	(0.48)		(0.49)		(0.46)		(0.50)		(0.48)		(0.52)		(0.51)
Nonparent controls	3.50		3.50		3.50		3.52		3.52		3.44		3.48
	(0.50)		(0.50)		(0.51)		(0.50)		(0.50)		(0.53)		(0.53)
Conscientiousness													
Grandparents	3.47		3.46		3.47		3.46		3.45		3.44		3.49
	(0.46)		(0.45)		(0.44)		(0.45)		(0.44)		(0.43)		(0.44)
Parent controls	3.45		3.45		3.45		3.47		3.46		3.43		3.44
	(0.45)		(0.45)		(0.45)		(0.45)		(0.46)		(0.50)		(0.50)
Nonparent controls	3.50		3.48		3.49		3.50		3.48		3.46		3.49
	(0.44)		(0.44)		(0.44)		(0.42)		(0.45)		(0.45)		(0.43)
Extraversion													
Grandparents	3.15		3.22		3.20		3.21		3.19		3.22		3.22
	(0.56)		(0.56)		(0.54)		(0.56)		(0.58)		(0.59)		(0.58)
Parent controls	3.20		3.18		3.19		3.21		3.21		3.17		3.19
	(0.51)		(0.56)		(0.54)		(0.54)		(0.54)		(0.55)		(0.56)
Nonparent controls	3.19		3.20		3.20		3.23		3.22		3.23		3.24
	(0.55)		(0.54)		(0.56)		(0.54)		(0.54)		(0.56)		(0.57)
Neuroticism													
Grandparents	2.00		1.97		2.06		1.91		1.96		1.91		1.91
	(0.56)		(0.63)		(0.62)		(0.60)		(0.58)		(0.59)		(0.61)
Parent controls	2.01		2.05		2.01		2.03		2.00		2.01		1.95
	(0.59)		(0.60)		(0.59)		(0.61)		(0.61)		(0.61)		(0.60)
Nonparent controls	2.05		2.00		2.02		1.92		1.97		1.84		1.90
	(0.56)		(0.58)		(0.60)		(0.57)		(0.59)		(0.55)		(0.58)

Table S4 continued

	Pre-transition years						Post-transition years						
	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Openness													
Grandparents	3.00		3.02		3.04		3.01		3.00		2.96		3.04
	(0.51)		(0.53)		(0.51)		(0.52)		(0.52)		(0.59)		(0.51)
Parent controls	3.03		3.00		2.98		3.03		3.00		2.96		2.96
	(0.51)		(0.56)		(0.54)		(0.54)		(0.52)		(0.58)		(0.56)
Nonparent controls	3.06		3.05		3.05		3.07		3.06		3.02		3.04
	(0.54)		(0.53)		(0.55)		(0.54)		(0.55)		(0.57)		(0.57)
Life satisfaction													
Grandparents	5.14		5.08		5.15		5.17		5.16		5.29		5.28
	(1.44)		(1.45)		(1.46)		(1.40)		(1.44)		(1.38)		(1.50)
Parent controls	5.14		4.98		5.01		5.11		5.10		5.06		5.12
	(1.52)		(1.57)		(1.57)		(1.52)		(1.53)		(1.47)		(1.47)
Nonparent controls	5.10		5.14		5.09		5.26		5.21		5.40		5.40
	(1.49)		(1.50)		(1.52)		(1.44)		(1.51)		(1.30)		(1.36)

Note. Standard deviations shown in brackets; $time = 0$ marks the first year where the transition to grandparenthood was reported.

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Table S5

Standardized Difference in Means for Covariates Used in Propensity Score Matching and the Propensity Score in the LISS panel.

			Parent control group		Nonparent control group	
Covariate	Description	Raw variable	Before PSM	After PSM	Before PSM	After PSM
pscore	Propensity score	/	1.14	0.02	1.34	0.04
female	Gender (f.=1, m.=0)	geslacht	0.05	0.00	0.05	0.00
age	Age	gebjaar	0.85	-0.10	4.05	-0.01
degreehighersec	Higher secondary/preparatory university education	oplmet	0.07	-0.06	-0.07	0.12
degreevocational	Intermediate vocational education	oplmet	-0.20	-0.06	-0.02	0.00
degreecollege	Higher vocational education	oplmet	0.00	0.05	0.02	-0.09
degreeuniversity	University degree	oplmet	-0.08	0.14	-0.15	-0.05
religion	Member of religion/church	cr*012	0.10	0.08	0.33	0.07
speakdutch	Dutch spoken at home (primarily)	cr*089	-0.02	-0.06	0.00	-0.02
divorced	Divorced (marital status)	burgstat	0.02	-0.03	0.29	-0.02
widowed	Widowed (marital status)	burgstat	0.09	-0.12	0.13	-0.07
livetogether	Live together with partner	cf*025	-0.08	0.04	1.05	-0.02
rooms	Rooms in dwelling	cd*034	-0.03	0.05	0.63	-0.11
logincome	Personal net monthly income in Euros (logarithm)	nettoink	-0.01	0.04	0.59	-0.14
rental	Live for rent (vs. self-owned dwelling)	woning	-0.08	-0.09	-0.47	-0.03
financialsit	Financial situation of household (scale from 1-5)	ci*252	0.08	0.00	-0.03	0.00
jobhours	Average work hours per week	cw*127	0.02	0.08	0.11	-0.04
mobility	Mobility problems (walking, staircase, shopping)	ch*023/027/041	0.07	0.04	0.09	-0.02
dep	Depression items from Mental Health Inventory	ch*011 - ch*015	-0.01	0.08	-0.22	-0.08
betterhealth	Poor/moderate health status (ref.: good)	ch*004	0.00	-0.01	-0.26	0.07
worsehealth	Very good/excellent health status (ref.: good)	ch*004	0.04	-0.02	0.11	-0.04
totalchildren	Number living children	cf*455 / cf*036	0.25	0.02	NA	NA
totalresidentkids	Number of living-at-home children in household	aantalki	-0.71	0.02	NA	NA
secondkid	Has two or more children	cf*455 / cf*036	0.20	0.04	NA	NA
thirdkid	Has three or more children	cf*455 / cf*036	0.26	0.01	NA	NA
kid1female	Gender of first child (f.=1, m.=0)	cf*068	0.04	0.04	NA	NA
kid2female	Gender of second child (f.=1, m.=0)	cf*069	0.01	-0.06	NA	NA
kid3female	Gender of third child (f.=1, m.=0)	cf*070	0.17	0.02	NA	NA
kid1age	Age of first child	cf*456 / cf*037	1.70	-0.17	NA	NA
kid2age	Age of second child	cf*457 / cf*038	0.87	-0.01	NA	NA

Table S5 continued

			Parent control group		Nonparent control group	
Covariate	Description	Raw variable	Before PSM	After PSM	Before PSM	After PSM
kid3age	Age of third child	cf*458 / cf*039	0.40	0.01	NA	NA
kid1home	First child living at home	cf*083	-1.56	0.05	NA	NA
kid2home	Second child living at home	cf*084	-1.05	0.04	NA	NA
kid3home	Third child living at home	cf*085	-0.05	0.00	NA	NA
swls	Satisfaction with Life Scale	cp*014 - cp*018	0.10	-0.03	0.25	-0.06
agree	Agreeableness	cp*021 - cp*066	0.05	-0.01	0.13	-0.13
con	Conscientiousness	cp*022 - cp*067	-0.06	-0.05	0.16	0.00
extra	Extraversion	cp*020 - cp*065	0.05	0.02	0.02	-0.07
neur	Neuroticism	cp*023 - cp*068	-0.02	0.02	-0.26	0.03
open	Openness	cp*024 - cp*069	0.06	0.05	-0.16	-0.08
participation	Waves participated	/	-0.27	-0.09	0.09	-0.03
year	Year of assessment	wave	-0.23	-0.07	0.08	-0.06

Note. PSM = propensity score matching, ref. = reference category, f. = female, m. = male, NA = covariate not used in this sample. The standardized difference in means between the grandparent and the two control groups (parent and nonparent) was computed by $(\bar{x}_{gp} - \bar{x}_c)/(\hat{\sigma}_{gp})$. Rules of thumb say that this measure should ideally be below .25 (Stuart, 2010) or below .10 (Austin, 2011).

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Table S6

Standardized Difference in Means for Covariates Used in Propensity Score Matching and the Propensity Score in the HRS.

			Parent control group		Nonparent control group	
Covariate	Description	Raw variable	Before PSM	After PSM	Before PSM	After PSM
pscore	Propensity score	/	0.92	0.01	1.45	0.00
female	Gender (f.=1, m.=0)	RAGENDER	-0.07	0.00	0.01	0.00
age	Age	RABYEAR	-0.46	-0.01	-1.02	0.11
schlyrs	Years of education	RAEDYRS	0.11	0.03	0.25	-0.04
religyear	Religious attendance: yearly	*B082	0.04	0.01	0.13	0.00
religmonth	Religious attendance: monthly	*B082	0.01	-0.02	0.10	0.05
religweek	Religious attendance: weekly	*B082	0.06	0.02	0.04	0.03
religmore	Religious attendance: more	*B082	0.09	-0.04	0.06	-0.01
notusaborn	Not born in the US	*Z230	-0.05	0.03	0.13	-0.02
black	Race: black/african american (ref.: white)	RARACEM	-0.13	-0.08	-0.22	0.01
raceother	Race: other (ref.: white)	RARACEM	-0.09	-0.06	0.01	-0.05
divorced	Divorced (marital status)	R*MSTAT	-0.06	0.01	0.01	0.03
widowed	Widowed (marital status)	R*MSTAT	-0.31	0.02	-0.41	0.04
livetogether	Live together with partner	*A030 / *XF065_R	0.25	-0.02	1.05	-0.04
roomslessthree	Number of rooms (in housing unit)	*H147 / *066	-0.15	-0.05	-0.59	-0.01
roomsfourfive	Number of rooms (in housing unit)	*H147 / *066	0.00	-0.02	-0.25	-0.03
roomsmoreeight	Number of rooms (in housing unit)	*H147 / *066	0.07	-0.03	0.28	0.00
loghhincome	Household income (logarithm)	*ITOT	0.03	0.03	0.41	0.00
loghhwealth	Household wealth (logarithm)	*ATOTB	0.07	0.05	0.34	-0.02
renter	Live for rent (vs. self-owned dwelling)	*H004	-0.10	-0.08	-0.51	-0.02
jobhours	Hours worked/week main job	R*JHOURS	0.25	0.08	0.59	0.00
paidwork	Working for pay	*J020	0.28	0.07	0.62	-0.04
mobilitydiff	Difficulty in mobility rated from 0-5	R*MOBILA	-0.16	-0.04	-0.52	0.00
cesd	CESD score (depression)	R*CESD	-0.13	-0.04	-0.26	-0.04
conde	Sum of health conditions	R*CONDE	-0.22	-0.03	-0.51	0.04
healthexcellent	Self-report of health - excellent (ref: good)	R*SHLT	0.05	0.02	0.15	-0.03
healthverygood	Self-report of health - very good (ref: good)	R*SHLT	0.23	0.02	0.31	-0.02
healthfair	Self-report of health - fair (ref: good)	R*SHLT	-0.16	-0.02	-0.29	0.00
healthpoor	Self-report of health - poor (ref: good)	R*SHLT	-0.07	-0.03	-0.24	0.02
totalnonresidentkids	Number of nonresident kids	*A100	0.66	-0.05	NA	NA
totalresidentkids	Number of resident children	*A099	-0.22	0.00	NA	NA
secondkid	Has two or more children	KIDID	0.52	-0.03	NA	NA

Table S6 continued

Covariate	Description	Raw variable	Parent control group		Nonparent control group	
			Before PSM	After PSM	Before PSM	After PSM
thirdkid	Has three or more children	KIDID	0.38	-0.03	NA	NA
kid1female	Gender of first child (f.=1, m.=0)	KAGENDERBG	0.11	0.03	NA	NA
kid2female	Gender of second child (f.=1, m.=0)	KAGENDERBG	0.17	-0.01	NA	NA
kid3female	Gender of third child (f.=1, m.=0)	KAGENDERBG	0.24	0.02	NA	NA
kid1age	Age of first child	KABYEARBG	-0.35	-0.02	NA	NA
kid2age	Age of second child	KABYEARBG	0.36	-0.03	NA	NA
kid3age	Age of third child	KABYEARBG	0.35	-0.01	NA	NA
kid1educ	Education of first child (years)	KAEDUC	0.30	0.02	NA	NA
kid2educ	Education of second child (years)	KAEDUC	0.57	0.00	NA	NA
kid3educ	Education of third child (years)	KAEDUC	0.40	-0.02	NA	NA
childrenclose	Children live within 10 miles	*E012	0.14	0.01	NA	NA
siblings	Number of living siblings	R*LIVSIB	0.05	-0.04	0.21	0.03
swls	Satisfaction with Life Scale	*LB003*	0.17	0.08	0.30	0.00
agree	Agreeableness	*LB033*	0.06	0.04	0.11	0.02
con	Conscientiousness	*LB033*	0.14	0.04	0.26	-0.04
extra	Extraversion	*LB033*	0.04	0.04	0.18	0.01
neur	Neuroticism	*LB033*	-0.06	0.00	-0.04	0.01
open	Openness	*LB033*	0.04	0.07	0.05	-0.04
participation	Waves participated (2006-2018)	/	-0.36	-0.01	-0.26	-0.04
interviewyear	Date of interview - year	*A501	-0.33	-0.05	-0.18	-0.05

Note. PSM = propensity score matching, ref. = reference category, f. = female, m. = male, NA = covariate not used in this sample. The standardized difference in means between the grandparent and the two control groups (parent and nonparent) was computed by $(\bar{x}_{gp} - \bar{x}_c)/(\hat{\sigma}_{gp})$. Rules of thumb say that this measure should ideally be below .25 (Stuart, 2010) or below .10 (Austin, 2011).

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Table S7

Fixed Effects of Agreeableness Over the Transition to Grandparenthood.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.86	[3.80, 3.92]	131.70	$< .001$	3.90	[3.83, 3.97]	112.97	$< .001$
Propensity score, $\hat{\gamma}_{02}$	-0.02	[-0.10, 0.05]	-0.56	.572	-0.01	[-0.08, 0.06]	-0.20	.838
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.00]	-0.25	.802	-0.01	[-0.01, 0.00]	-1.81	.070
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.02, -0.01]	-6.76	$< .001$	-0.01	[-0.01, 0.00]	-3.32	.001
Shift, $\hat{\gamma}_{30}$	0.04	[0.01, 0.06]	3.12	.002	0.03	[0.00, 0.05]	1.98	.048
Grandparent, $\hat{\gamma}_{01}$	0.06	[-0.03, 0.15]	1.33	.183	0.01	[-0.08, 0.11]	0.30	.768
Before-slope * Grandparent, $\hat{\gamma}_{11}$	-0.01	[-0.02, 0.01]	-1.06	.289	0.00	[-0.01, 0.01]	-0.26	.791
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.01, 0.03]	2.99	.003	0.01	[0.00, 0.02]	1.44	.149
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.01	[-0.06, 0.04]	-0.37	.714	0.00	[-0.06, 0.06]	0.08	.937
HRS								
Intercept, $\hat{\gamma}_{00}$	3.46	[3.43, 3.50]	196.32	$< .001$	3.48	[3.44, 3.52]	166.19	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.08	[0.02, 0.14]	2.51	.012	0.05	[-0.01, 0.11]	1.51	.131
Before-slope, $\hat{\gamma}_{10}$	0.01	[0.00, 0.02]	1.37	.169	-0.01	[-0.02, 0.00]	-1.33	.184
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.02, 0.00]	-2.87	.004	-0.02	[-0.02, -0.01]	-5.16	$< .001$
Shift, $\hat{\gamma}_{30}$	0.01	[-0.01, 0.03]	0.71	.476	0.04	[0.02, 0.06]	4.30	$< .001$
Grandparent, $\hat{\gamma}_{01}$	0.02	[-0.03, 0.08]	0.88	.378	0.01	[-0.04, 0.07]	0.44	.662
Before-slope * Grandparent, $\hat{\gamma}_{11}$	-0.01	[-0.04, 0.01]	-0.87	.384	0.00	[-0.02, 0.03]	0.28	.781
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.01	[0.00, 0.03]	1.71	.088	0.02	[0.01, 0.04]	2.78	.006
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.01	[-0.05, 0.04]	-0.35	.729	-0.04	[-0.09, 0.00]	-1.97	.049

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

Table S8

Linear Contrasts for Agreeableness.

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.02	4.00	.046	0.02	2.22	.136
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.03	1.79	.181	0.03	1.51	.219
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.01	0.08	.779	0.01	0.18	.668
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	-0.01	1.72	.189	-0.01	1.45	.228
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.00	0.01	.934	0.00	0.00	.958
HRS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.00	0.12	.725	0.03	10.76	.001
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.00	0.03	.859	0.00	0.03	.862
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.01	0.10	.751	-0.02	1.77	.183
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.00	0.09	.762	0.00	0.11	.743
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.00	0.23	.633	0.00	0.28	.596

Note. The linear contrasts are needed in cases where estimates of interest are represented by multiple fixed-effects coefficients and are computed using the *linearHypothesis* function from the *car* R package (Fox & Weisberg, 2019) based on the models from Table S7. $\hat{\gamma}_c$ = combined fixed-effects estimate.

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Table S9

Fixed Effects of Agreeableness Over the Transition to Grandparenthood Moderated by Gender.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.65	[3.58, 3.73]	93.02	$< .001$	3.66	[3.57, 3.75]	79.73	$< .001$
Propensity score, $\hat{\gamma}_{04}$	-0.01	[-0.08, 0.07]	-0.21	.833	0.02	[-0.05, 0.08]	0.45	.653
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	0.02	.984	0.00	[-0.01, 0.01]	-0.37	.712
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.03, -0.02]	-6.37	$< .001$	-0.01	[-0.02, 0.00]	-2.49	.013
Shift, $\hat{\gamma}_{30}$	0.03	[-0.01, 0.07]	1.66	.097	0.07	[0.03, 0.11]	3.66	$< .001$
Grandparent, $\hat{\gamma}_{01}$	0.06	[-0.06, 0.17]	0.92	.356	0.04	[-0.09, 0.17]	0.60	.550
Female, $\hat{\gamma}_{02}$	0.38	[0.27, 0.48]	7.16	$< .001$	0.44	[0.32, 0.56]	7.11	$< .001$
Before-slope * Grandparent, $\hat{\gamma}_{11}$	-0.01	[-0.03, 0.01]	-0.73	.466	0.00	[-0.02, 0.01]	-0.50	.615
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.03	[0.01, 0.05]	3.43	.001	0.01	[0.00, 0.03]	1.64	.101
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.01	[-0.09, 0.07]	-0.33	.739	-0.05	[-0.14, 0.03]	-1.23	.217
Before-slope * Female, $\hat{\gamma}_{12}$	0.00	[-0.01, 0.01]	-0.26	.799	-0.01	[-0.02, 0.00]	-1.14	.254
After-slope * Female, $\hat{\gamma}_{22}$	0.01	[0.00, 0.02]	2.34	.019	0.00	[-0.01, 0.01]	0.28	.781
Shift * Female, $\hat{\gamma}_{32}$	0.02	[-0.03, 0.06]	0.60	.550	-0.08	[-0.14, -0.03]	-3.18	.001
Grandparent * Female, $\hat{\gamma}_{03}$	0.01	[-0.15, 0.17]	0.15	.883	-0.05	[-0.22, 0.12]	-0.57	.568
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.00	[-0.03, 0.02]	-0.05	.959	0.00	[-0.02, 0.03]	0.35	.728
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.02	[-0.04, 0.00]	-1.92	.056	-0.01	[-0.03, 0.01]	-0.93	.351
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.01	[-0.10, 0.12]	0.21	.836	0.11	[-0.01, 0.23]	1.87	.061
HRS								
Intercept, $\hat{\gamma}_{00}$	3.27	[3.23, 3.32]	132.82	$< .001$	3.38	[3.33, 3.43]	122.35	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.09	[0.03, 0.15]	2.91	.004	0.04	[-0.03, 0.10]	1.12	.261
Before-slope, $\hat{\gamma}_{10}$	0.02	[0.01, 0.04]	2.98	.003	-0.01	[-0.02, 0.01]	-1.12	.262
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.03, -0.01]	-3.95	$< .001$	-0.02	[-0.03, -0.01]	-3.43	.001
Shift, $\hat{\gamma}_{30}$	0.04	[0.01, 0.07]	2.77	.006	0.03	[0.00, 0.06]	1.68	.093
Grandparent, $\hat{\gamma}_{01}$	0.08	[0.00, 0.16]	1.97	.048	-0.01	[-0.09, 0.08]	-0.16	.877
Female, $\hat{\gamma}_{02}$	0.33	[0.27, 0.39]	10.55	$< .001$	0.20	[0.13, 0.26]	5.76	$< .001$
Before-slope * Grandparent, $\hat{\gamma}_{11}$	-0.04	[-0.08, 0.00]	-2.18	.030	-0.01	[-0.04, 0.03]	-0.47	.640
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.04	[0.01, 0.06]	3.00	.003	0.03	[0.01, 0.05]	2.85	.004
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.05	[-0.12, 0.02]	-1.50	.133	-0.03	[-0.10, 0.03]	-1.04	.298
Before-slope * Female, $\hat{\gamma}_{12}$	-0.03	[-0.05, -0.01]	-2.84	.004	0.00	[-0.02, 0.02]	0.38	.702
After-slope * Female, $\hat{\gamma}_{22}$	0.02	[0.01, 0.03]	2.74	.006	0.00	[-0.01, 0.01]	0.08	.937
Shift * Female, $\hat{\gamma}_{32}$	-0.06	[-0.11, -0.02]	-3.07	.002	0.03	[-0.01, 0.07]	1.50	.134

Table S9 continued

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Grandparent * Female, $\hat{\gamma}_{03}$	-0.10	[-0.20, 0.01]	-1.77	.077	0.03	[-0.07, 0.14]	0.64	.521
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.06	[0.01, 0.11]	2.20	.028	0.02	[-0.03, 0.07]	0.86	.392
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.04	[-0.07, -0.01]	-2.48	.013	-0.02	[-0.05, 0.01]	-1.34	.180
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.08	[-0.01, 0.17]	1.73	.084	-0.01	[-0.10, 0.07]	-0.31	.758

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S10

Linear Contrasts for Agreeableness (Moderated by Gender).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.01	0.19	.665	0.06	13.04	< .001
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.03	5.25	.022	-0.02	1.90	.168
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.02	0.47	.493	0.02	0.40	.525
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.04	1.79	.181	0.04	1.56	.212
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.01	0.17	.678	-0.04	1.05	.305
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	-0.01	0.78	.376	0.00	0.00	.971
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.01	0.78	.377	0.00	0.15	.695
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.00	0.02	.886	0.06	3.02	.082
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.03	1.51	.219	-0.08	12.80	< .001
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.00	0.03	.853	0.00	0.03	.857
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.01	0.92	.337	-0.01	0.82	.366
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.02	0.15	.695	0.02	0.14	.712
HRS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.02	3.34	.067	0.01	0.41	.520
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.02	4.49	.034	0.04	14.19	< .001
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.01	0.05	.818	0.01	0.05	.815
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$	0.00	0.01	.927	0.00	0.01	.936
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.02	0.39	.531	0.00	0.01	.929
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.01	0.74	.390	0.01	0.58	.445
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.00	0.15	.701	0.01	1.32	.250
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.02	1.07	.301	-0.04	2.61	.106
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.04	7.70	.006	0.03	3.92	.048
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.02	1.17	.279	0.02	1.28	.258
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.02	1.94	.163	-0.02	2.13	.144
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.00	0.01	.912	0.00	0.01	.904

Note. The linear contrasts are based on the models from Table S9. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S11

Fixed Effects of Agreeableness Over the Transition to Grandparenthood Moderated by Performing Paid Work.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.50	[3.45, 3.54]	157.26	$< .001$	3.48	[3.43, 3.52]	138.40	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.09	[0.03, 0.15]	2.93	.003	0.04	[-0.03, 0.10]	1.14	.253
Before-slope, $\hat{\gamma}_{10}$	0.01	[-0.01, 0.03]	0.91	.363	0.00	[-0.02, 0.02]	-0.23	.819
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.03, -0.01]	-4.07	$< .001$	-0.03	[-0.04, -0.02]	-5.38	$< .001$
Shift, $\hat{\gamma}_{30}$	-0.01	[-0.04, 0.02]	-0.53	.594	0.07	[0.03, 0.10]	3.93	$< .001$
Grandparent, $\hat{\gamma}_{01}$	-0.11	[-0.20, -0.02]	-2.33	.020	-0.07	[-0.16, 0.02]	-1.49	.137
Working, $\hat{\gamma}_{02}$	-0.06	[-0.10, -0.02]	-2.77	.006	0.01	[-0.03, 0.05]	0.61	.540
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.04	[-0.01, 0.09]	1.55	.121	0.05	[0.00, 0.10]	2.09	.037
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.00, 0.05]	1.96	.050	0.03	[0.01, 0.05]	2.68	.007
Shift * Grandparent, $\hat{\gamma}_{31}$	0.00	[-0.08, 0.07]	-0.07	.947	-0.08	[-0.15, -0.01]	-2.17	.030
Before-slope * Working, $\hat{\gamma}_{12}$	0.00	[-0.03, 0.02]	-0.30	.767	0.00	[-0.03, 0.02]	-0.37	.712
After-slope * Working, $\hat{\gamma}_{22}$	0.02	[0.01, 0.04]	2.87	.004	0.02	[0.01, 0.03]	2.83	.005
Shift * Working, $\hat{\gamma}_{32}$	0.02	[-0.03, 0.06]	0.77	.441	-0.04	[-0.08, 0.00]	-1.87	.061
Grandparent * Working, $\hat{\gamma}_{03}$	0.18	[0.08, 0.28]	3.68	$< .001$	0.11	[0.02, 0.20]	2.40	.017
Before-slope * Grandparent * Working, $\hat{\gamma}_{13}$	-0.06	[-0.12, -0.01]	-2.15	.032	-0.06	[-0.12, -0.01]	-2.22	.026
After-slope * Grandparent * Working, $\hat{\gamma}_{23}$	-0.02	[-0.05, 0.02]	-0.97	.333	-0.01	[-0.05, 0.02]	-0.94	.347
Shift * Grandparent * Working, $\hat{\gamma}_{33}$	-0.01	[-0.10, 0.09]	-0.11	.914	0.05	[-0.04, 0.14]	1.08	.282

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *working* = 1 indicates being employed in paid work.

Table S12

Linear Contrasts for Agreeableness (Moderated by Paid Work; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
Shift of not-working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.03	5.08	.024	0.04	7.79	.005
Shift of working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.01	0.52	.472	0.02	3.86	.049
Shift of not-working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.01	0.14	.713	-0.01	0.15	.699
Shift of working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.01	0.10	.755	0.01	0.09	.768
Shift of not-working controls vs. not-working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.02	0.44	.505	-0.05	2.76	.097
Before-slope of working controls vs. working grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	-0.02	2.73	.099	-0.01	0.76	.383
After-slope of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.01	0.36	.548	0.02	2.00	.157
Shift of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.00	0.00	.966	-0.01	0.35	.553
Shift of not-working controls vs. working controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.04	4.89	.027	-0.02	1.43	.232
Before-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.07	6.12	.013	-0.07	6.87	.009
After-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.01	0.12	.734	0.01	0.13	.714
Shift of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.02	0.22	.637	0.02	0.23	.633

Note. The linear contrasts are based on the models from Table S11. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S13

Fixed Effects of Agreeableness Over the Transition to Grandparenthood Moderated by Grandchild Care.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.47	[3.43, 3.52]	155.84	$< .001$	3.47	[3.42, 3.53]	130.92	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.16	[0.08, 0.24]	3.91	$< .001$	0.15	[0.07, 0.23]	3.67	$< .001$
After-slope, $\hat{\gamma}_{10}$	-0.02	[-0.03, -0.01]	-4.36	$< .001$	-0.02	[-0.03, -0.01]	-3.63	$< .001$
Grandparent, $\hat{\gamma}_{01}$	-0.04	[-0.11, 0.03]	-1.16	.246	-0.05	[-0.12, 0.02]	-1.49	.137
Caring, $\hat{\gamma}_{02}$	0.00	[-0.04, 0.03]	-0.27	.784	0.02	[-0.01, 0.05]	1.09	.276
After-slope * Grandparent, $\hat{\gamma}_{11}$	0.03	[0.00, 0.05]	2.36	.018	0.02	[0.00, 0.04]	2.02	.044
After-slope * Caring, $\hat{\gamma}_{12}$	0.00	[-0.01, 0.02]	0.29	.773	0.00	[-0.02, 0.01]	-0.60	.550
Grandparent * Caring, $\hat{\gamma}_{03}$	0.02	[-0.07, 0.11]	0.46	.645	0.00	[-0.09, 0.08]	-0.09	.925
After-slope * Grandparent * Caring, $\hat{\gamma}_{13}$	0.01	[-0.02, 0.04]	0.57	.572	0.02	[-0.02, 0.05]	1.00	.319

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *caring* = 1 indicates more than 100 hours of grandchild care since the last assessment.

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Table S14

Linear Contrasts for Agreeableness (Moderated by Grandchild Care; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
After-slope of caring controls vs. caring grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.04	7.62	.006	0.04	9.15	.002
After-slope of not-caring grandparents vs. caring grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.01	0.61	.434	0.01	0.66	.415

Note. The linear contrasts are based on the models from Table S13. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S15

Fixed Effects of Conscientiousness Over the Transition to Grandparenthood.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.77	[3.72, 3.83]	130.27	$< .001$	3.82	[3.75, 3.88]	112.10	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.00	[-0.08, 0.08]	-0.02	.987	0.01	[-0.06, 0.08]	0.24	.813
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.00]	-0.84	.402	0.00	[-0.01, 0.01]	-0.26	.796
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.02, -0.01]	-6.17	$< .001$	0.01	[0.00, 0.01]	3.45	.001
Shift, $\hat{\gamma}_{30}$	0.04	[0.02, 0.07]	3.14	.002	0.00	[-0.03, 0.02]	-0.15	.881
Grandparent, $\hat{\gamma}_{01}$	-0.01	[-0.10, 0.08]	-0.24	.813	-0.06	[-0.15, 0.04]	-1.22	.225
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.01, 0.02]	0.77	.439	0.00	[-0.01, 0.02]	0.50	.617
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.00, 0.03]	2.73	.006	-0.01	[-0.02, 0.00]	-1.61	.107
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.04	[-0.10, 0.01]	-1.49	.137	0.00	[-0.06, 0.06]	0.01	.989
HRS								
Intercept, $\hat{\gamma}_{00}$	3.41	[3.38, 3.44]	206.26	$< .001$	3.35	[3.31, 3.38]	172.70	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.08	[0.03, 0.14]	2.86	.004	0.17	[0.11, 0.23]	5.74	$< .001$
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	0.31	.754	0.00	[-0.01, 0.01]	0.72	.473
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.02, -0.01]	-4.11	$< .001$	-0.01	[-0.02, -0.01]	-3.84	$< .001$
Shift, $\hat{\gamma}_{30}$	0.02	[0.00, 0.04]	1.93	.053	0.00	[-0.02, 0.02]	0.01	.991
Grandparent, $\hat{\gamma}_{01}$	0.02	[-0.04, 0.07]	0.60	.547	0.03	[-0.02, 0.08]	1.08	.280
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.01	[-0.02, 0.03]	0.55	.580	0.00	[-0.02, 0.03]	0.43	.664
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.01, 0.04]	3.06	.002	0.02	[0.01, 0.04]	3.01	.003
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.05	[-0.09, -0.01]	-2.36	.018	-0.03	[-0.07, 0.01]	-1.59	.111

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S16

Linear Contrasts for Conscientiousness.

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.02	4.71	.030	0.01	0.40	.525
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.00	0.01	.928	0.00	0.01	.932
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.03	1.14	.286	-0.01	0.13	.718
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.00	0.20	.655	0.00	0.18	.667
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.00	0.01	.942	0.00	0.01	.943
HRS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.01	0.47	.491	-0.01	2.83	.092
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.02	2.49	.114	-0.02	2.82	.093
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.03	2.96	.085	-0.01	0.54	.462
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.01	0.59	.444	0.01	0.68	.409
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.01	1.88	.170	0.01	2.13	.145

Note. The linear contrasts are needed in cases where estimates of interest are represented by multiple fixed-effects coefficients and are computed using the *linearHypothesis* function from the *car* R package (Fox & Weisberg, 2019) based on the models from Table S15. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S17

Fixed Effects of Conscientiousness Over the Transition to Grandparenthood Moderated by Gender.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.69	[3.60, 3.77]	87.30	$< .001$	3.70	[3.61, 3.80]	75.84	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.00	[-0.08, 0.07]	-0.03	.976	0.01	[-0.06, 0.08]	0.34	.732
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	0.64	.524	0.00	[-0.01, 0.01]	0.75	.455
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.02, -0.01]	-3.43	.001	0.00	[0.00, 0.01]	0.71	.477
Shift, $\hat{\gamma}_{30}$	0.04	[0.00, 0.08]	2.16	.031	0.00	[-0.03, 0.04]	0.14	.892
Grandparent, $\hat{\gamma}_{01}$	0.03	[-0.09, 0.16]	0.48	.634	0.01	[-0.13, 0.14]	0.12	.907
Female, $\hat{\gamma}_{02}$	0.16	[0.05, 0.27]	2.88	.004	0.22	[0.09, 0.34]	3.26	.001
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.02, 0.02]	-0.01	.994	0.00	[-0.02, 0.02]	-0.06	.953
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.00, 0.04]	2.53	.011	0.01	[-0.01, 0.02]	0.65	.513
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.04	[-0.13, 0.04]	-1.07	.286	-0.01	[-0.09, 0.08]	-0.14	.886
Before-slope * Female, $\hat{\gamma}_{12}$	-0.01	[-0.02, 0.00]	-1.61	.108	-0.01	[-0.02, 0.00]	-1.23	.218
After-slope * Female, $\hat{\gamma}_{22}$	-0.01	[-0.02, 0.00]	-1.11	.268	0.01	[0.00, 0.02]	2.38	.017
Shift * Female, $\hat{\gamma}_{32}$	0.00	[-0.05, 0.05]	-0.04	.970	-0.01	[-0.06, 0.04]	-0.41	.683
Grandparent * Female, $\hat{\gamma}_{03}$	-0.07	[-0.24, 0.10]	-0.81	.418	-0.12	[-0.30, 0.06]	-1.30	.193
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.01	[-0.02, 0.03]	0.61	.542	0.01	[-0.02, 0.03]	0.44	.663
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.01	[-0.03, 0.01]	-0.84	.403	-0.03	[-0.05, 0.00]	-2.37	.018
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.01	[-0.11, 0.12]	0.11	.916	0.02	[-0.10, 0.13]	0.27	.787
HRS								
Intercept, $\hat{\gamma}_{00}$	3.35	[3.30, 3.39]	143.72	$< .001$	3.26	[3.21, 3.31]	124.79	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.09	[0.03, 0.14]	3.00	.003	0.17	[0.11, 0.23]	5.65	$< .001$
Before-slope, $\hat{\gamma}_{10}$	0.01	[-0.01, 0.02]	1.19	.234	0.01	[0.00, 0.03]	2.08	.037
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.02, 0.00]	-2.42	.016	0.00	[-0.01, 0.01]	-0.10	.920
Shift, $\hat{\gamma}_{30}$	0.02	[-0.01, 0.05]	1.18	.237	-0.01	[-0.04, 0.02]	-0.74	.462
Grandparent, $\hat{\gamma}_{01}$	-0.03	[-0.10, 0.05]	-0.74	.461	0.01	[-0.07, 0.09]	0.28	.780
Female, $\hat{\gamma}_{02}$	0.11	[0.05, 0.17]	3.81	$< .001$	0.15	[0.09, 0.22]	4.67	$< .001$
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.01	[-0.02, 0.05]	0.74	.460	0.01	[-0.03, 0.04]	0.45	.651
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.03	[0.01, 0.05]	2.64	.008	0.02	[0.00, 0.04]	1.71	.088
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.08	[-0.15, -0.02]	-2.57	.010	-0.06	[-0.12, 0.00]	-1.85	.064
Before-slope * Female, $\hat{\gamma}_{12}$	-0.01	[-0.03, 0.01]	-1.34	.180	-0.02	[-0.04, 0.00]	-2.16	.031
After-slope * Female, $\hat{\gamma}_{22}$	0.00	[-0.02, 0.01]	-0.39	.695	-0.02	[-0.03, -0.01]	-3.05	.002
Shift * Female, $\hat{\gamma}_{32}$	0.00	[-0.04, 0.04]	0.13	.895	0.02	[-0.02, 0.05]	0.92	.356

Table S17 continued

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Grandparent * Female, $\hat{\gamma}_{03}$	0.08	[-0.02, 0.18]	1.64	.101	0.03	[-0.07, 0.13]	0.62	.538
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	-0.01	[-0.06, 0.03]	-0.47	.637	0.00	[-0.05, 0.04]	-0.21	.836
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.01	[-0.04, 0.02]	-0.79	.428	0.00	[-0.02, 0.03]	0.29	.770
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.06	[-0.03, 0.14]	1.34	.181	0.05	[-0.04, 0.13]	1.11	.269

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S18

Linear Contrasts for Conscientiousness (Moderated by Gender).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.03	2.83	.092	0.01	0.10	.750
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.02	1.93	.165	0.01	0.22	.640
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.00	0.02	.883	0.00	0.02	.886
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.01	0.04	.849	-0.01	0.03	.857
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.02	0.40	.528	0.00	0.00	.991
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.01	0.81	.368	0.01	0.34	.560
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.01	2.25	.133	-0.02	7.67	.006
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.03	0.64	.422	-0.01	0.14	.709
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.01	0.09	.763	0.00	0.01	.930
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.00	0.02	.901	0.00	0.02	.899
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.02	2.25	.134	-0.02	2.12	.146
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.01	0.06	.812	-0.01	0.05	.820
HRS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.01	0.21	.648	-0.01	1.00	.317
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.01	0.26	.609	-0.01	1.95	.163
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.05	4.94	.026	-0.05	5.72	.017
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$	0.00	0.01	.906	0.00	0.01	.912
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.05	4.78	.029	-0.04	2.75	.097
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.00	0.02	.900	0.00	0.04	.839
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.02	2.96	.085	0.02	5.42	.020
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.01	0.11	.737	0.01	0.27	.600
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.00	0.00	.998	0.00	0.02	.877
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.02	1.36	.244	-0.03	1.58	.208
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.01	1.17	.279	-0.02	1.43	.232
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.05	2.47	.116	0.05	2.90	.089

Note. The linear contrasts are based on the models from Table S17. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S19

Fixed Effects of Conscientiousness Over the Transition to Grandparenthood Moderated by Performing Paid Work.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.41	[3.37, 3.45]	165.13	$< .001$	3.37	[3.33, 3.42]	146.02	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.06	[0.00, 0.12]	2.13	.033	0.14	[0.09, 0.20]	4.83	$< .001$
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.03, 0.00]	-1.55	.121	0.00	[-0.02, 0.02]	-0.28	.779
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.03, -0.01]	-3.55	$< .001$	-0.02	[-0.03, -0.01]	-4.10	$< .001$
Shift, $\hat{\gamma}_{30}$	0.02	[-0.01, 0.05]	1.49	.137	-0.02	[-0.05, 0.01]	-1.30	.193
Grandparent, $\hat{\gamma}_{01}$	-0.09	[-0.18, -0.01]	-2.19	.029	-0.10	[-0.18, -0.01]	-2.30	.022
Working, $\hat{\gamma}_{02}$	0.01	[-0.03, 0.05]	0.45	.650	-0.03	[-0.06, 0.01]	-1.60	.109
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.08	[0.04, 0.13]	3.54	$< .001$	0.07	[0.03, 0.12]	3.16	.002
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.03	[0.01, 0.05]	2.66	.008	0.03	[0.01, 0.05]	2.96	.003
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.09	[-0.16, -0.02]	-2.64	.008	-0.05	[-0.11, 0.02]	-1.46	.145
Before-slope * Working, $\hat{\gamma}_{12}$	0.02	[0.00, 0.05]	2.21	.027	0.01	[-0.01, 0.03]	0.91	.362
After-slope * Working, $\hat{\gamma}_{22}$	0.01	[0.00, 0.03]	1.92	.055	0.02	[0.01, 0.03]	2.96	.003
Shift * Working, $\hat{\gamma}_{32}$	-0.01	[-0.05, 0.03]	-0.45	.653	0.03	[-0.01, 0.06]	1.30	.194
Grandparent * Working, $\hat{\gamma}_{03}$	0.14	[0.05, 0.23]	3.16	.002	0.17	[0.09, 0.26]	4.05	$< .001$
Before-slope * Grandparent * Working, $\hat{\gamma}_{13}$	-0.10	[-0.16, -0.05]	-3.69	$< .001$	-0.09	[-0.14, -0.04]	-3.31	.001
After-slope * Grandparent * Working, $\hat{\gamma}_{23}$	-0.01	[-0.04, 0.02]	-0.76	.449	-0.02	[-0.05, 0.01]	-1.17	.240
Shift * Grandparent * Working, $\hat{\gamma}_{33}$	0.06	[-0.03, 0.15]	1.31	.191	0.02	[-0.06, 0.11]	0.56	.578

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. $working = 1$ indicates being employed in paid work.

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Table S20

Linear Contrasts for Conscientiousness (Moderated by Paid Work; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
Shift of not-working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.01	0.23	.635	-0.04	9.72	.002
Shift of working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.01	1.06	.304	0.00	0.28	.598
Shift of not-working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.06	5.20	.023	-0.06	5.93	.015
Shift of working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.01	0.09	.768	-0.01	0.13	.717
Shift of not-working controls vs. not-working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.06	5.09	.024	-0.02	0.46	.498
Before-slope of working controls vs. working grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	-0.02	1.75	.185	-0.02	1.50	.221
After-slope of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.02	2.59	.107	0.01	1.83	.176
Shift of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.02	0.52	.469	-0.01	0.31	.578
Shift of not-working controls vs. working controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.00	0.06	.809	0.04	8.10	.004
Before-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.08	9.38	.002	-0.08	10.44	.001
After-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.00	0.01	.920	0.00	0.02	.879
Shift of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.05	2.62	.106	0.05	2.89	.089

Note. The linear contrasts are based on the models from Table S19. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S21

Fixed Effects of Conscientiousness Over the Transition to Grandparenthood Moderated by Grandchild Care.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.44	[3.40, 3.48]	168.69	$< .001$	3.34	[3.30, 3.39]	138.33	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.08	[0.00, 0.15]	2.03	.042	0.29	[0.22, 0.37]	7.78	$< .001$
After-slope, $\hat{\gamma}_{10}$	-0.02	[-0.03, -0.01]	-3.80	$< .001$	-0.01	[-0.02, 0.00]	-2.74	.006
Grandparent, $\hat{\gamma}_{01}$	-0.02	[-0.08, 0.05]	-0.51	.610	-0.02	[-0.09, 0.04]	-0.74	.462
Caring, $\hat{\gamma}_{02}$	0.00	[-0.03, 0.03]	0.03	.972	0.02	[0.00, 0.05]	1.64	.102
After-slope * Grandparent, $\hat{\gamma}_{11}$	0.01	[-0.01, 0.03]	1.37	.170	0.01	[-0.01, 0.02]	0.73	.468
After-slope * Caring, $\hat{\gamma}_{12}$	0.00	[-0.01, 0.01]	0.01	.993	-0.01	[-0.02, 0.00]	-1.72	.085
Grandparent * Caring, $\hat{\gamma}_{03}$	-0.04	[-0.12, 0.04]	-0.93	.355	-0.07	[-0.14, 0.01]	-1.74	.081
After-slope * Grandparent * Caring, $\hat{\gamma}_{13}$	0.03	[0.00, 0.06]	1.88	.060	0.04	[0.01, 0.07]	2.82	.005

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *caring* = 1 indicates more than 100 hours of grandchild care since the last assessment.

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Table S22

Linear Contrasts for Conscientiousness (Moderated by Grandchild Care; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
After-slope of caring controls vs. caring grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.04	13.75	$< .001$	0.05	19.49	$< .001$
After-slope of not-caring grandparents vs. caring grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.03	4.48	.034	0.03	5.28	.022

Note. The linear contrasts are based on the models from Table S21. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S23

Fixed Effects of Extraversion Over the Transition to Grandparenthood.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.25	[3.18, 3.33]	87.65	$< .001$	3.29	[3.20, 3.39]	67.72	$< .001$
Propensity score, $\hat{\gamma}_{02}$	-0.01	[-0.10, 0.07]	-0.26	.793	0.01	[-0.07, 0.08]	0.18	.860
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.01, 0.00]	-1.77	.077	0.00	[0.00, 0.01]	0.65	.515
After-slope, $\hat{\gamma}_{20}$	0.00	[-0.01, 0.00]	-1.47	.141	-0.01	[-0.02, 0.00]	-3.62	$< .001$
Shift, $\hat{\gamma}_{30}$	-0.01	[-0.04, 0.01]	-0.97	.332	-0.01	[-0.03, 0.02]	-0.41	.683
Grandparent, $\hat{\gamma}_{01}$	0.06	[-0.05, 0.17]	1.03	.306	0.01	[-0.12, 0.14]	0.19	.849
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.02, 0.01]	-0.40	.690	-0.01	[-0.02, 0.00]	-1.44	.150
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.00	[-0.01, 0.02]	0.57	.569	0.01	[0.00, 0.02]	1.45	.146
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.02	[-0.08, 0.05]	-0.51	.607	-0.02	[-0.08, 0.04]	-0.73	.467
HRS								
Intercept, $\hat{\gamma}_{00}$	3.20	[3.16, 3.24]	159.82	$< .001$	3.11	[3.07, 3.16]	133.29	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.02	[-0.05, 0.08]	0.56	.577	0.05	[-0.02, 0.12]	1.44	.150
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	-0.52	.604	0.01	[-0.01, 0.02]	0.99	.321
After-slope, $\hat{\gamma}_{20}$	0.00	[-0.01, 0.01]	-0.64	.520	0.00	[-0.01, 0.01]	-0.35	.729
Shift, $\hat{\gamma}_{30}$	0.02	[0.00, 0.04]	1.68	.093	0.01	[-0.01, 0.03]	1.07	.285
Grandparent, $\hat{\gamma}_{01}$	0.00	[-0.06, 0.06]	0.05	.957	0.07	[0.01, 0.14]	2.20	.028
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.02, 0.03]	0.31	.757	0.00	[-0.03, 0.02]	-0.35	.728
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.01	[0.00, 0.03]	1.46	.143	0.01	[0.00, 0.03]	1.38	.169
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.04	[-0.09, 0.01]	-1.55	.121	-0.03	[-0.08, 0.02]	-1.30	.193

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

Table S24

Linear Contrasts for Extraversion.

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.02	2.12	.145	-0.02	1.73	.188
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.03	1.58	.208	-0.03	1.47	.225
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.01	0.21	.647	-0.01	0.25	.620
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	-0.01	1.77	.183	-0.01	1.65	.200
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.00	0.01	.912	0.00	0.03	.852
HRS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.02	3.63	.057	0.01	1.51	.219
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.01	0.34	.561	-0.01	0.36	.548
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.03	1.90	.168	-0.02	1.19	.275
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.00	0.01	.925	0.00	0.01	.929
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.01	1.73	.189	0.01	1.86	.173

Note. The linear contrasts are needed in cases where estimates of interest are represented by multiple fixed-effects coefficients and are computed using the *linearHypothesis* function from the *car* R package (Fox & Weisberg, 2019) based on the models from Table S23. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S25

Fixed Effects of Extraversion Over the Transition to Grandparenthood Moderated by Gender.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.28	[3.18, 3.39]	60.26	$< .001$	3.22	[3.08, 3.35]	46.79	$< .001$
Propensity score, $\hat{\gamma}_{04}$	-0.01	[-0.09, 0.08]	-0.15	.881	0.01	[-0.06, 0.09]	0.30	.765
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.02, 0.00]	-1.82	.069	0.02	[0.01, 0.03]	4.00	$< .001$
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.02, 0.00]	-2.56	.011	0.00	[-0.01, 0.00]	-1.08	.280
Shift, $\hat{\gamma}_{30}$	-0.04	[-0.08, 0.01]	-1.68	.094	-0.05	[-0.09, -0.01]	-2.43	.015
Grandparent, $\hat{\gamma}_{01}$	0.01	[-0.15, 0.17]	0.09	.929	0.07	[-0.11, 0.26]	0.78	.435
Female, $\hat{\gamma}_{02}$	-0.06	[-0.20, 0.09]	-0.78	.436	0.13	[-0.05, 0.31]	1.45	.148
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.02, 0.02]	0.14	.893	-0.03	[-0.05, -0.01]	-2.49	.013
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.01	[-0.01, 0.03]	1.19	.236	0.00	[-0.01, 0.02]	0.48	.628
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.01	[-0.10, 0.08]	-0.12	.903	0.01	[-0.08, 0.10]	0.22	.825
Before-slope * Female, $\hat{\gamma}_{12}$	0.01	[-0.01, 0.02]	0.87	.386	-0.03	[-0.04, -0.02]	-4.83	$< .001$
After-slope * Female, $\hat{\gamma}_{22}$	0.01	[0.00, 0.02]	2.10	.035	-0.01	[-0.02, 0.00]	-2.03	.043
Shift * Female, $\hat{\gamma}_{32}$	0.04	[-0.02, 0.09]	1.36	.174	0.08	[0.03, 0.14]	2.91	.004
Grandparent * Female, $\hat{\gamma}_{03}$	0.09	[-0.13, 0.31]	0.82	.411	-0.11	[-0.36, 0.13]	-0.90	.369
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	-0.01	[-0.04, 0.02]	-0.53	.593	0.03	[0.00, 0.06]	2.09	.037
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.01	[-0.04, 0.01]	-1.11	.266	0.01	[-0.02, 0.03]	0.71	.475
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	-0.02	[-0.14, 0.10]	-0.29	.768	-0.06	[-0.18, 0.06]	-0.98	.328
HRS								
Intercept, $\hat{\gamma}_{00}$	3.15	[3.09, 3.21]	108.70	$< .001$	3.11	[3.04, 3.17]	96.32	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.02	[-0.04, 0.09]	0.64	.520	0.05	[-0.02, 0.12]	1.31	.191
Before-slope, $\hat{\gamma}_{10}$	0.01	[-0.01, 0.02]	0.70	.482	0.00	[-0.02, 0.01]	-0.37	.709
After-slope, $\hat{\gamma}_{20}$	0.01	[0.00, 0.02]	2.05	.040	0.00	[-0.01, 0.01]	0.51	.609
Shift, $\hat{\gamma}_{30}$	-0.01	[-0.04, 0.02]	-0.52	.601	-0.01	[-0.04, 0.03]	-0.41	.685
Grandparent, $\hat{\gamma}_{01}$	-0.01	[-0.10, 0.08]	-0.28	.782	0.02	[-0.08, 0.11]	0.39	.697
Female, $\hat{\gamma}_{02}$	0.08	[0.01, 0.16]	2.24	.025	0.01	[-0.07, 0.09]	0.30	.767
Before-slope * Grandparent, $\hat{\gamma}_{11}$	-0.02	[-0.06, 0.02]	-0.85	.397	-0.01	[-0.05, 0.03]	-0.41	.684
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.00	[-0.02, 0.03]	0.35	.730	0.01	[-0.01, 0.04]	1.09	.276
Shift * Grandparent, $\hat{\gamma}_{31}$	0.00	[-0.08, 0.07]	-0.12	.905	-0.01	[-0.08, 0.06]	-0.19	.853
Before-slope * Female, $\hat{\gamma}_{12}$	-0.02	[-0.04, 0.01]	-1.44	.150	0.02	[-0.01, 0.04]	1.40	.161
After-slope * Female, $\hat{\gamma}_{22}$	-0.03	[-0.04, -0.01]	-3.28	.001	-0.01	[-0.02, 0.01]	-0.98	.327
Shift * Female, $\hat{\gamma}_{32}$	0.05	[0.00, 0.09]	2.17	.030	0.03	[-0.01, 0.07]	1.45	.146

Table S25 continued

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Grandparent * Female, $\hat{\gamma}_{03}$	0.03	[-0.09, 0.15]	0.45	.649	0.10	[-0.03, 0.22]	1.51	.131
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.04	[-0.01, 0.09]	1.42	.155	0.01	[-0.05, 0.06]	0.23	.817
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	0.01	[-0.02, 0.05]	0.79	.431	0.00	[-0.04, 0.03]	-0.27	.790
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	-0.06	[-0.16, 0.04]	-1.19	.234	-0.04	[-0.14, 0.05]	-0.87	.383

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

Table S26

Linear Contrasts for Extraversion (Moderated by Gender).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.05	6.28	.012	-0.05	9.10	.003
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.01	0.09	.763	0.02	0.95	.330
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	1.25	.264	-0.04	1.16	.281
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.02	0.45	.500	-0.02	0.41	.520
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.01	0.02	.891	0.01	0.13	.716
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	-0.01	0.42	.518	0.00	0.13	.720
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.00	0.13	.722	0.01	2.45	.117
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.03	0.54	.461	-0.04	1.03	.311
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.05	4.20	.040	0.07	8.22	.004
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.00	0.03	.871	0.00	0.01	.943
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.00	0.03	.857	0.00	0.04	.834
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.02	0.14	.709	0.02	0.13	.717
HRS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.00	0.06	.812	0.00	0.09	.765
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.03	5.44	.020	0.02	3.52	.061
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.00	0.01	.905	0.00	0.01	.903
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$	-0.02	0.73	.393	-0.02	0.78	.377
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.00	0.00	.999	0.01	0.06	.805
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.02	1.42	.234	0.00	0.01	.909
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.02	2.40	.122	0.01	0.65	.419
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.05	3.28	.070	-0.04	2.65	.104
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.02	1.88	.171	0.02	2.10	.147
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.02	0.79	.373	0.02	0.85	.357
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.01	0.57	.452	-0.01	0.62	.431
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.02	0.44	.508	-0.02	0.47	.495

Note. The linear contrasts are based on the models from Table S25. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S27

Fixed Effects of Extraversion Over the Transition to Grandparenthood Moderated by Performing Paid Work.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.18	[3.13, 3.23]	129.04	$< .001$	3.12	[3.07, 3.17]	112.49	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.01	[-0.06, 0.08]	0.31	.757	0.03	[-0.04, 0.10]	0.77	.439
Before-slope, $\hat{\gamma}_{10}$	0.02	[0.00, 0.04]	1.69	.091	0.00	[-0.02, 0.02]	0.09	.927
After-slope, $\hat{\gamma}_{20}$	0.00	[-0.01, 0.01]	0.12	.901	-0.01	[-0.02, 0.00]	-1.24	.213
Shift, $\hat{\gamma}_{30}$	-0.04	[-0.08, -0.01]	-2.48	.013	0.02	[-0.02, 0.05]	0.91	.364
Grandparent, $\hat{\gamma}_{01}$	-0.06	[-0.16, 0.04]	-1.23	.217	-0.01	[-0.11, 0.09]	-0.18	.853
Working, $\hat{\gamma}_{02}$	0.03	[-0.02, 0.07]	1.19	.232	0.00	[-0.05, 0.04]	-0.12	.902
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.02	[-0.03, 0.07]	0.74	.460	0.04	[-0.02, 0.09]	1.38	.169
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.00, 0.04]	1.65	.099	0.03	[0.00, 0.05]	2.32	.021
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.02	[-0.10, 0.06]	-0.46	.643	-0.08	[-0.16, 0.00]	-2.02	.044
Before-slope * Working, $\hat{\gamma}_{12}$	-0.03	[-0.05, -0.01]	-2.38	.017	0.01	[-0.02, 0.03]	0.59	.556
After-slope * Working, $\hat{\gamma}_{22}$	0.00	[-0.02, 0.01]	-0.19	.848	0.01	[0.00, 0.03]	1.79	.074
Shift * Working, $\hat{\gamma}_{32}$	0.10	[0.05, 0.14]	4.18	$< .001$	-0.01	[-0.06, 0.04]	-0.43	.667
Grandparent * Working, $\hat{\gamma}_{03}$	0.08	[-0.02, 0.18]	1.53	.126	0.11	[0.01, 0.21]	2.13	.034
Before-slope * Grandparent * Working, $\hat{\gamma}_{13}$	-0.01	[-0.08, 0.05]	-0.46	.646	-0.05	[-0.11, 0.01]	-1.69	.092
After-slope * Grandparent * Working, $\hat{\gamma}_{23}$	-0.01	[-0.05, 0.02]	-0.80	.425	-0.03	[-0.06, 0.00]	-1.69	.090
Shift * Grandparent * Working, $\hat{\gamma}_{33}$	-0.03	[-0.13, 0.08]	-0.49	.623	0.08	[-0.02, 0.18]	1.57	.115

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. $working = 1$ indicates being employed in paid work.

Table S28

Linear Contrasts for Extraversion (Moderated by Paid Work; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
Shift of not-working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.04	9.28	.002	0.01	0.42	.515
Shift of working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.05	22.76	$<$ .001	0.01	1.67	.196
Shift of not-working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	2.05	.152	-0.04	2.20	.138
Shift of working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.01	0.40	.526	0.01	0.42	.517
Shift of not-working controls vs. not-working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.00	0.00	.957	-0.05	2.60	.107
Before-slope of working controls vs. working grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.01	0.12	.729	-0.02	1.06	.303
After-slope of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.01	0.28	.598	0.00	0.00	.948
Shift of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.04	2.46	.117	0.00	0.00	.987
Shift of not-working controls vs. working controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.10	27.75	$<$ .001	0.00	0.04	.852
Before-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.04	2.34	.126	-0.04	2.52	.113
After-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.02	0.97	.325	-0.02	1.01	.314
Shift of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.06	2.24	.135	0.06	2.38	.123

Note. The linear contrasts are based on the models from Table S27. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S29

Fixed Effects of Extraversion Over the Transition to Grandparenthood Moderated by Grandchild Care.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.19	[3.14, 3.24]	128.26	$< .001$	3.12	[3.06, 3.18]	102.87	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.13	[0.04, 0.22]	2.98	.003	0.08	[-0.01, 0.17]	1.67	.096
After-slope, $\hat{\gamma}_{10}$	-0.01	[-0.03, 0.00]	-2.61	.009	0.00	[-0.01, 0.01]	-0.39	.694
Grandparent, $\hat{\gamma}_{01}$	-0.04	[-0.11, 0.03]	-1.05	.296	0.04	[-0.04, 0.12]	1.06	.288
Caring, $\hat{\gamma}_{02}$	0.00	[-0.03, 0.04]	0.23	.815	0.02	[-0.02, 0.05]	0.86	.391
After-slope * Grandparent, $\hat{\gamma}_{11}$	0.02	[-0.01, 0.04]	1.32	.186	0.00	[-0.02, 0.02]	0.30	.767
After-slope * Caring, $\hat{\gamma}_{12}$	0.00	[-0.02, 0.02]	-0.04	.965	0.00	[-0.02, 0.01]	-0.42	.676
Grandparent * Caring, $\hat{\gamma}_{03}$	-0.04	[-0.13, 0.06]	-0.74	.461	-0.05	[-0.14, 0.04]	-1.04	.299
After-slope * Grandparent * Caring, $\hat{\gamma}_{13}$	0.03	[-0.01, 0.06]	1.56	.119	0.03	[0.00, 0.07]	1.83	.067

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *caring* = 1 indicates more than 100 hours of grandchild care since the last assessment.

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Table S30

Linear Contrasts for Extraversion (Moderated by Grandchild Care; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
After-slope of caring controls vs. caring grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.04	10.45	.001	0.04	7.39	.007
After-slope of not-caring grandparents vs. caring grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.03	2.98	.084	0.03	3.37	.066

Note. The linear contrasts are based on the models from Table S29. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S31

Fixed Effects of Neuroticism Over the Transition to Grandparenthood.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	2.48	[2.40, 2.56]	63.09	$< .001$	2.45	[2.35, 2.54]	51.88	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.01	[-0.09, 0.11]	0.19	.852	0.00	[-0.09, 0.09]	0.04	.967
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	-0.56	.575	-0.01	[-0.02, -0.01]	-3.66	$< .001$
After-slope, $\hat{\gamma}_{20}$	0.00	[0.00, 0.01]	0.94	.350	0.00	[0.00, 0.01]	1.31	.190
Shift, $\hat{\gamma}_{30}$	-0.05	[-0.08, -0.02]	-2.96	.003	-0.03	[-0.06, 0.01]	-1.58	.115
Grandparent, $\hat{\gamma}_{01}$	-0.08	[-0.20, 0.03]	-1.37	.170	-0.04	[-0.17, 0.08]	-0.67	.500
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.01, 0.02]	0.43	.668	0.02	[0.00, 0.03]	1.83	.067
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.00	[-0.02, 0.01]	-0.33	.744	0.00	[-0.02, 0.01]	-0.48	.635
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.02	[-0.09, 0.06]	-0.41	.684	-0.04	[-0.12, 0.04]	-1.01	.312
HRS								
Intercept, $\hat{\gamma}_{00}$	2.07	[2.03, 2.11]	94.42	$< .001$	2.07	[2.02, 2.12]	79.36	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.00	[-0.07, 0.08]	0.12	.902	0.15	[0.07, 0.23]	3.70	$< .001$
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.03, 0.00]	-1.90	.057	-0.03	[-0.04, -0.02]	-4.70	$< .001$
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.01, 0.00]	-1.20	.230	-0.01	[-0.02, -0.01]	-3.18	.001
Shift, $\hat{\gamma}_{30}$	0.01	[-0.02, 0.03]	0.42	.675	-0.03	[-0.06, -0.01]	-2.36	.018
Grandparent, $\hat{\gamma}_{01}$	-0.06	[-0.13, 0.01]	-1.64	.100	-0.12	[-0.19, -0.05]	-3.31	.001
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.02	[-0.01, 0.05]	1.28	.201	0.04	[0.01, 0.07]	2.42	.016
After-slope * Grandparent, $\hat{\gamma}_{21}$	-0.02	[-0.04, 0.00]	-1.52	.127	-0.01	[-0.03, 0.01]	-0.80	.424
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.06	[-0.12, 0.00]	-2.12	.034	-0.03	[-0.08, 0.03]	-0.88	.381

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S32

Linear Contrasts for Neuroticism.

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.05	10.12	.001	-0.02	2.26	.133
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.07	4.99	.025	-0.07	4.74	.029
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.02	0.30	.587	-0.04	1.62	.203
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.00	0.04	.842	0.00	0.05	.830
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.00	0.01	.914	0.00	0.02	.900
HRS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.00	0.00	.993	-0.04	20.02	$< .001$
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.08	15.10	$< .001$	-0.08	15.78	$< .001$
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.08	12.06	.001	-0.03	2.29	.130
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.01	0.25	.618	0.01	0.19	.666
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	-0.02	5.29	.021	-0.02	6.13	.013

Note. The linear contrasts are needed in cases where estimates of interest are represented by multiple fixed-effects coefficients and are computed using the *linearHypothesis* function from the *car* R package (Fox & Weisberg, 2019) based on the models from Table S31. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S33

Fixed Effects of Neuroticism Over the Transition to Grandparenthood Moderated by Gender.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	2.45	[2.34, 2.56]	43.45	$< .001$	2.32	[2.19, 2.45]	34.99	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.02	[-0.09, 0.12]	0.30	.767	0.02	[-0.08, 0.11]	0.33	.744
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.02, 0.00]	-1.89	.059	-0.01	[-0.02, 0.00]	-1.12	.263
After-slope, $\hat{\gamma}_{20}$	0.01	[0.00, 0.02]	2.82	.005	0.01	[0.00, 0.02]	2.43	.015
Shift, $\hat{\gamma}_{30}$	-0.06	[-0.11, -0.01]	-2.24	.025	-0.05	[-0.10, 0.00]	-1.95	.052
Grandparent, $\hat{\gamma}_{01}$	-0.18	[-0.35, -0.01]	-2.11	.035	-0.05	[-0.23, 0.13]	-0.56	.574
Female, $\hat{\gamma}_{02}$	0.05	[-0.09, 0.20]	0.72	.474	0.22	[0.05, 0.40]	2.52	.012
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.01	[-0.01, 0.04]	0.82	.413	0.01	[-0.02, 0.03]	0.46	.643
After-slope * Grandparent, $\hat{\gamma}_{21}$	-0.02	[-0.04, 0.01]	-1.36	.173	-0.01	[-0.04, 0.01]	-1.15	.250
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.03	[-0.14, 0.08]	-0.51	.612	-0.04	[-0.15, 0.08]	-0.63	.529
Before-slope * Female, $\hat{\gamma}_{12}$	0.02	[0.00, 0.03]	2.03	.043	-0.01	[-0.03, 0.00]	-1.83	.067
After-slope * Female, $\hat{\gamma}_{22}$	-0.02	[-0.03, -0.01]	-2.99	.003	-0.01	[-0.03, 0.00]	-2.10	.036
Shift * Female, $\hat{\gamma}_{32}$	0.01	[-0.05, 0.08]	0.39	.700	0.04	[-0.03, 0.11]	1.19	.234
Grandparent * Female, $\hat{\gamma}_{03}$	0.18	[-0.05, 0.40]	1.54	.123	0.01	[-0.24, 0.25]	0.06	.951
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	-0.01	[-0.05, 0.02]	-0.66	.508	0.02	[-0.02, 0.05]	1.08	.279
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	0.02	[-0.01, 0.05]	1.48	.138	0.02	[-0.01, 0.05]	1.08	.282
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.03	[-0.12, 0.18]	0.35	.730	0.00	[-0.16, 0.15]	-0.03	.975
HRS								
Intercept, $\hat{\gamma}_{00}$	1.98	[1.91, 2.04]	62.73	$< .001$	2.01	[1.94, 2.08]	56.33	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.01	[-0.07, 0.09]	0.26	.798	0.15	[0.07, 0.23]	3.58	$< .001$
Before-slope, $\hat{\gamma}_{10}$	-0.02	[-0.04, 0.00]	-2.11	.035	-0.03	[-0.05, -0.01]	-3.18	.001
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.03, 0.00]	-2.40	.017	-0.02	[-0.03, -0.01]	-2.92	.003
Shift, $\hat{\gamma}_{30}$	0.08	[0.04, 0.12]	4.02	$< .001$	0.00	[-0.03, 0.04]	0.21	.834
Grandparent, $\hat{\gamma}_{01}$	-0.06	[-0.16, 0.04]	-1.10	.272	-0.16	[-0.26, -0.05]	-2.89	.004
Female, $\hat{\gamma}_{02}$	0.17	[0.09, 0.25]	4.19	$< .001$	0.10	[0.01, 0.19]	2.23	.026
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.06	[0.01, 0.10]	2.26	.024	0.06	[0.02, 0.11]	2.72	.007
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.00	[-0.03, 0.03]	0.31	.755	0.01	[-0.02, 0.04]	0.48	.630
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.16	[-0.25, -0.07]	-3.60	$< .001$	-0.08	[-0.17, 0.00]	-1.89	.059
Before-slope * Female, $\hat{\gamma}_{12}$	0.01	[-0.01, 0.04]	1.04	.300	0.00	[-0.03, 0.03]	0.09	.926
After-slope * Female, $\hat{\gamma}_{22}$	0.02	[0.00, 0.04]	2.19	.029	0.01	[-0.01, 0.03]	1.15	.250
Shift * Female, $\hat{\gamma}_{32}$	-0.14	[-0.19, -0.08]	-5.02	$< .001$	-0.06	[-0.11, -0.01]	-2.33	.020

Table S33 continued

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Grandparent * Female, $\hat{\gamma}_{03}$	0.00	[-0.14, 0.13]	-0.01	.993	0.06	[-0.08, 0.20]	0.82	.410
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	-0.06	[-0.12, 0.00]	-1.85	.065	-0.05	[-0.11, 0.01]	-1.49	.138
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.04	[-0.08, 0.00]	-1.80	.073	-0.03	[-0.07, 0.01]	-1.35	.176
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.17	[0.06, 0.29]	2.90	.004	0.10	[-0.01, 0.21]	1.71	.087

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S34

Linear Contrasts for Neuroticism (Moderated by Gender).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.04	3.64	.056	-0.04	2.76	.096
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.05	6.02	.014	-0.01	0.24	.621
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.09	3.89	.048	-0.09	3.67	.055
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.04	1.25	.263	-0.05	1.20	.273
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	0.80	.371	-0.05	0.97	.325
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.00	0.01	.935	0.03	4.48	.034
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.01	0.51	.476	0.00	0.12	.730
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.01	0.01	.904	-0.03	0.57	.451
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.01	0.06	.799	0.03	0.76	.382
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.00	0.08	.783	0.00	0.09	.765
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.00	0.02	.882	0.00	0.02	.875
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.04	0.50	.481	0.04	0.46	.498
HRS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.06	17.37	$< .001$	-0.02	1.08	.299
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.05	13.66	$< .001$	-0.07	25.37	$< .001$
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.09	9.12	.003	-0.09	9.50	.002
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$	-0.07	6.49	.011	-0.07	6.77	.009
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.16	20.99	$< .001$	-0.07	5.10	.024
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.00	0.05	.821	0.02	0.73	.392
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	-0.03	5.41	.020	-0.02	2.20	.138
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.02	0.37	.541	0.00	0.01	.943
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.12	31.04	$< .001$	-0.05	6.32	.012
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.05	2.41	.120	-0.05	2.56	.109
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.02	0.84	.360	-0.02	0.88	.349
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.02	0.30	.584	0.02	0.31	.577

Note. The linear contrasts are based on the models from Table S33. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S35

Fixed Effects of Neuroticism Over the Transition to Grandparenthood Moderated by Performing Paid Work.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	2.02	[1.96, 2.07]	72.21	$< .001$	2.02	[1.96, 2.08]	63.73	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.00	[-0.08, 0.08]	0.01	.993	0.15	[0.06, 0.23]	3.46	.001
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.02, 0.03]	0.18	.860	-0.01	[-0.04, 0.02]	-0.84	.400
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.02, 0.01]	-0.79	.429	-0.01	[-0.02, 0.00]	-1.41	.159
Shift, $\hat{\gamma}_{30}$	0.04	[0.00, 0.08]	1.91	.056	-0.03	[-0.07, 0.01]	-1.32	.188
Grandparent, $\hat{\gamma}_{01}$	0.13	[0.02, 0.25]	2.28	.022	0.07	[-0.04, 0.19]	1.27	.203
Working, $\hat{\gamma}_{02}$	0.08	[0.03, 0.13]	2.94	.003	0.07	[0.02, 0.12]	2.63	.009
Before-slope * Grandparent, $\hat{\gamma}_{11}$	-0.07	[-0.13, 0.00]	-2.04	.042	-0.06	[-0.12, 0.01]	-1.73	.084
After-slope * Grandparent, $\hat{\gamma}_{21}$	-0.02	[-0.05, 0.01]	-1.55	.122	-0.02	[-0.05, 0.01]	-1.37	.170
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.05	[-0.15, 0.05]	-1.03	.303	0.02	[-0.07, 0.11]	0.45	.655
Before-slope * Working, $\hat{\gamma}_{12}$	-0.02	[-0.05, 0.01]	-1.43	.153	-0.02	[-0.05, 0.01]	-1.54	.123
After-slope * Working, $\hat{\gamma}_{22}$	0.00	[-0.02, 0.02]	-0.23	.820	-0.01	[-0.02, 0.01]	-0.73	.463
Shift * Working, $\hat{\gamma}_{32}$	-0.05	[-0.11, 0.00]	-1.90	.058	0.00	[-0.05, 0.06]	0.13	.893
Grandparent * Working, $\hat{\gamma}_{03}$	-0.25	[-0.38, -0.13]	-4.08	$< .001$	-0.25	[-0.37, -0.13]	-4.20	$< .001$
Before-slope * Grandparent * Working, $\hat{\gamma}_{13}$	0.11	[0.04, 0.19]	2.95	.003	0.12	[0.04, 0.19]	3.13	.002
After-slope * Grandparent * Working, $\hat{\gamma}_{23}$	0.01	[-0.03, 0.05]	0.51	.613	0.02	[-0.02, 0.06]	0.75	.451
Shift * Grandparent * Working, $\hat{\gamma}_{33}$	-0.02	[-0.15, 0.10]	-0.33	.740	-0.08	[-0.20, 0.04]	-1.23	.217

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *working* = 1 indicates being employed in paid work.

Table S36

Linear Contrasts for Neuroticism (Moderated by Paid Work; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
Shift of not-working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.04	4.30	.038	-0.04	4.61	.032
Shift of working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.02	2.18	.140	-0.04	11.64	.001
Shift of not-working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	1.12	.290	-0.04	1.24	.266
Shift of working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.10	15.38	$< .001$	-0.10	16.09	$< .001$
Shift of not-working controls vs. not-working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.07	3.47	.063	0.00	0.00	.974
Before-slope of working controls vs. working grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.05	5.89	.015	0.06	11.29	.001
After-slope of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	-0.01	0.72	.396	0.00	0.11	.743
Shift of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.08	8.11	.004	-0.06	4.48	.034
Shift of not-working controls vs. working controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.06	6.36	.012	0.00	0.02	.895
Before-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.09	6.73	.009	0.09	7.45	.006
After-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.01	0.20	.651	0.01	0.23	.634
Shift of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.07	2.14	.143	-0.06	2.17	.141

Note. The linear contrasts are based on the models from Table S35. $\hat{\gamma}_c$ = combined fixed-effects estimate.

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Table S37

Fixed Effects of Neuroticism Over the Transition to Grandparenthood Moderated by Grandchild Care.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	2.04	[1.99, 2.09]	75.41	$< .001$	1.97	[1.91, 2.04]	59.05	$< .001$
Propensity score, $\hat{\gamma}_{04}$	-0.02	[-0.12, 0.07]	-0.45	.652	0.14	[0.03, 0.24]	2.59	.010
After-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	-0.02	.982	-0.02	[-0.03, 0.00]	-2.67	.008
Grandparent, $\hat{\gamma}_{01}$	-0.10	[-0.18, -0.02]	-2.45	.014	-0.11	[-0.20, -0.02]	-2.43	.015
Caring, $\hat{\gamma}_{02}$	0.01	[-0.04, 0.05]	0.33	.740	0.00	[-0.04, 0.04]	-0.09	.930
After-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.03, 0.02]	-0.17	.865	0.01	[-0.01, 0.04]	1.06	.291
After-slope * Caring, $\hat{\gamma}_{12}$	-0.01	[-0.03, 0.01]	-1.01	.311	0.01	[-0.01, 0.03]	0.68	.494
Grandparent * Caring, $\hat{\gamma}_{03}$	0.09	[-0.02, 0.20]	1.57	.117	0.09	[-0.02, 0.21]	1.67	.095
After-slope * Grandparent * Caring, $\hat{\gamma}_{13}$	-0.03	[-0.07, 0.01]	-1.34	.182	-0.04	[-0.09, 0.00]	-2.07	.038

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *caring* = 1 indicates more than 100 hours of grandchild care since the last assessment.

1417

Table S38

Linear Contrasts for Neuroticism (Moderated by Grandchild Care; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
After-slope of caring controls vs. caring grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	-0.03	3.78	.052	-0.03	3.60	.058
After-slope of not-caring grandparents vs. caring grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.04	4.06	.044	-0.04	3.90	.048

Note. The linear contrasts are based on the models from Table S37. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S39

Fixed Effects of Openness Over the Transition to Grandparenthood.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.48	[3.42, 3.53]	118.77	$< .001$	3.52	[3.45, 3.59]	104.18	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.00	[-0.08, 0.07]	-0.07	.944	0.03	[-0.03, 0.09]	1.02	.309
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.00]	-1.58	.114	0.00	[-0.01, 0.00]	-0.68	.494
After-slope, $\hat{\gamma}_{20}$	-0.01	[-0.01, 0.00]	-2.36	.018	0.00	[0.00, 0.01]	1.95	.051
Shift, $\hat{\gamma}_{30}$	0.02	[0.00, 0.05]	1.88	.061	0.00	[-0.02, 0.02]	0.00	.998
Grandparent, $\hat{\gamma}_{01}$	0.01	[-0.08, 0.09]	0.16	.872	-0.05	[-0.14, 0.04]	-1.06	.290
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.01	[0.00, 0.02]	1.23	.220	0.01	[-0.01, 0.02]	0.87	.384
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.00	[-0.01, 0.01]	0.11	.910	-0.01	[-0.02, 0.00]	-1.92	.055
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.03	[-0.08, 0.03]	-1.05	.296	-0.01	[-0.06, 0.04]	-0.21	.832
HRS								
Intercept, $\hat{\gamma}_{00}$	3.04	[3.00, 3.08]	149.49	$< .001$	3.01	[2.96, 3.06]	129.29	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.03	[-0.04, 0.09]	0.82	.411	0.00	[-0.06, 0.07]	0.13	.895
Before-slope, $\hat{\gamma}_{10}$	-0.02	[-0.03, -0.01]	-3.29	.001	0.00	[-0.01, 0.01]	-0.68	.495
After-slope, $\hat{\gamma}_{20}$	-0.02	[-0.03, -0.01]	-5.28	$< .001$	-0.02	[-0.02, -0.01]	-4.83	$< .001$
Shift, $\hat{\gamma}_{30}$	0.06	[0.03, 0.08]	4.92	$< .001$	0.03	[0.01, 0.05]	3.26	.001
Grandparent, $\hat{\gamma}_{01}$	-0.02	[-0.08, 0.05]	-0.55	.582	0.02	[-0.04, 0.09]	0.75	.451
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.02	[-0.01, 0.04]	1.36	.172	0.00	[-0.02, 0.03]	0.19	.850
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.02	[0.00, 0.03]	2.01	.044	0.01	[0.00, 0.03]	1.74	.083
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.07	[-0.12, -0.02]	-2.86	.004	-0.05	[-0.09, 0.00]	-2.16	.031

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

Table S40

Linear Contrasts for Openness.

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.02	2.57	.109	0.00	0.21	.650
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.01	0.25	.618	-0.01	0.30	.585
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.03	1.38	.241	-0.02	0.48	.489
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.00	0.34	.561	0.00	0.40	.528
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	-0.01	1.15	.284	-0.01	1.36	.244
HRS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.03	16.48	$< .001$	0.02	4.36	.037
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.02	1.31	.253	-0.02	1.57	.210
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.05	8.14	.004	-0.04	4.25	.039
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.00	0.00	.946	0.00	0.01	.908
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.00	0.14	.709	0.00	0.20	.658

Note. The linear contrasts are needed in cases where estimates of interest are represented by multiple fixed-effects coefficients and are computed using the *linearHypothesis* function from the *car* R package (Fox & Weisberg, 2019) based on the models from Table S39. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S41

Fixed Effects of Openness Over the Transition to Grandparenthood Moderated by Gender.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	3.47	[3.39, 3.55]	81.39	$< .001$	3.54	[3.45, 3.64]	73.02	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.00	[-0.08, 0.07]	-0.04	.970	0.03	[-0.03, 0.09]	0.94	.347
Before-slope, $\hat{\gamma}_{10}$	0.00	[-0.01, 0.01]	0.17	.864	0.01	[0.00, 0.02]	2.39	.017
After-slope, $\hat{\gamma}_{20}$	0.00	[-0.01, 0.00]	-1.05	.292	0.01	[0.00, 0.01]	1.53	.126
Shift, $\hat{\gamma}_{30}$	-0.02	[-0.05, 0.02]	-0.93	.353	-0.01	[-0.04, 0.02]	-0.64	.523
Grandparent, $\hat{\gamma}_{01}$	0.11	[-0.01, 0.24]	1.78	.076	0.03	[-0.10, 0.16]	0.44	.661
Female, $\hat{\gamma}_{02}$	0.01	[-0.10, 0.12]	0.16	.871	-0.05	[-0.17, 0.08]	-0.69	.488
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.02, 0.01]	-0.39	.694	-0.01	[-0.03, 0.00]	-1.42	.156
After-slope * Grandparent, $\hat{\gamma}_{21}$	-0.01	[-0.02, 0.01]	-0.88	.380	-0.02	[-0.03, 0.00]	-2.16	.031
Shift * Grandparent, $\hat{\gamma}_{31}$	0.03	[-0.05, 0.12]	0.84	.400	0.03	[-0.05, 0.10]	0.75	.452
Before-slope * Female, $\hat{\gamma}_{12}$	-0.01	[-0.02, 0.00]	-1.64	.102	-0.02	[-0.03, -0.01]	-3.89	$< .001$
After-slope * Female, $\hat{\gamma}_{22}$	0.00	[-0.01, 0.01]	-0.79	.431	0.00	[-0.01, 0.01]	-0.24	.812
Shift * Female, $\hat{\gamma}_{32}$	0.08	[0.03, 0.13]	2.98	.003	0.02	[-0.03, 0.06]	0.84	.402
Grandparent * Female, $\hat{\gamma}_{03}$	-0.20	[-0.37, -0.03]	-2.31	.021	-0.15	[-0.33, 0.03]	-1.59	.113
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.02	[0.00, 0.05]	1.70	.090	0.03	[0.01, 0.06]	2.80	.005
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	0.01	[-0.01, 0.04]	1.29	.197	0.01	[-0.01, 0.03]	1.14	.255
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	-0.12	[-0.23, -0.01]	-2.11	.035	-0.06	[-0.16, 0.04]	-1.21	.225
HRS								
Intercept, $\hat{\gamma}_{00}$	3.06	[3.00, 3.12]	108.70	$< .001$	3.03	[2.97, 3.09]	97.90	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.03	[-0.04, 0.09]	0.86	.391	0.00	[-0.06, 0.07]	0.03	.976
Before-slope, $\hat{\gamma}_{10}$	-0.02	[-0.04, 0.00]	-2.44	.015	-0.01	[-0.03, 0.00]	-1.90	.058
After-slope, $\hat{\gamma}_{20}$	-0.03	[-0.04, -0.02]	-5.75	$< .001$	-0.01	[-0.02, 0.00]	-2.04	.042
Shift, $\hat{\gamma}_{30}$	0.11	[0.07, 0.14]	6.34	$< .001$	0.00	[-0.03, 0.03]	-0.29	.772
Grandparent, $\hat{\gamma}_{01}$	-0.03	[-0.12, 0.06]	-0.62	.535	0.01	[-0.08, 0.10]	0.24	.813
Female, $\hat{\gamma}_{02}$	-0.03	[-0.09, 0.04]	-0.80	.423	-0.04	[-0.11, 0.04]	-0.98	.328
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.01	[-0.03, 0.05]	0.41	.685	0.00	[-0.03, 0.04]	0.05	.960
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.03	[0.01, 0.06]	2.66	.008	0.01	[-0.01, 0.03]	0.94	.346
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.15	[-0.22, -0.07]	-3.93	$< .001$	-0.03	[-0.10, 0.03]	-1.00	.316
Before-slope * Female, $\hat{\gamma}_{12}$	0.00	[-0.02, 0.03]	0.28	.781	0.02	[0.00, 0.04]	1.97	.049
After-slope * Female, $\hat{\gamma}_{22}$	0.02	[0.01, 0.04]	3.05	.002	-0.01	[-0.02, 0.00]	-1.47	.141
Shift * Female, $\hat{\gamma}_{32}$	-0.09	[-0.14, -0.05]	-4.11	$< .001$	0.06	[0.03, 0.10]	3.21	.001

Table S41 continued

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Grandparent * Female, $\hat{\gamma}_{03}$	0.02	[-0.10, 0.13]	0.30	.763	0.03	[-0.09, 0.14]	0.45	.652
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.02	[-0.04, 0.07]	0.67	.504	0.00	[-0.05, 0.05]	0.08	.939
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.03	[-0.06, 0.00]	-1.75	.079	0.00	[-0.03, 0.03]	0.27	.790
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.14	[0.04, 0.23]	2.71	.007	-0.02	[-0.11, 0.06]	-0.52	.603

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S42

Linear Contrasts for Openness (Moderated by Gender).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	-0.02	1.70	.192	-0.01	0.14	.706
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.05	11.29	.001	0.01	0.84	.359
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.01	0.03	.853	0.01	0.04	.833
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.03	0.78	.378	-0.03	0.93	.335
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.03	0.57	.450	0.01	0.13	.721
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.02	4.38	.036	0.02	6.74	.009
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.01	0.91	.341	0.00	0.42	.517
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.08	5.37	.020	-0.04	1.63	.202
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.07	10.45	.001	0.02	0.82	.366
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.01	1.16	.282	0.01	1.41	.236
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.01	1.10	.294	0.01	1.33	.249
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.03	0.53	.466	-0.03	0.65	.421
HRS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.07	32.25	$< .001$	-0.02	1.67	.197
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.00	0.15	.698	0.04	15.02	$< .001$
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	2.39	.122	-0.04	2.82	.093
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$	0.00	0.01	.919	0.00	0.02	.899
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.11	15.71	$< .001$	-0.02	0.80	.372
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.03	2.17	.141	0.00	0.03	.863
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.00	0.10	.747	0.01	2.08	.150
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.01	0.07	.791	-0.04	3.38	.066
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.07	15.92	$< .001$	0.05	12.31	$< .001$
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.02	0.76	.382	0.02	1.04	.307
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.01	0.19	.660	-0.01	0.19	.663
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.04	1.17	.280	0.04	1.35	.245

Note. The linear contrasts are based on the models from Table S41. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S43

Fixed Effects of Openness Over the Transition to Grandparenthood Moderated by Performing Paid Work.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.02	[2.97, 3.06]	121.17	$< .001$	3.03	[2.97, 3.08]	111.81	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.01	[-0.06, 0.07]	0.25	.800	-0.01	[-0.08, 0.05]	-0.39	.693
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.03, 0.01]	-1.03	.303	-0.01	[-0.03, 0.01]	-0.96	.339
After-slope, $\hat{\gamma}_{20}$	-0.03	[-0.04, -0.02]	-5.25	$< .001$	-0.02	[-0.03, -0.01]	-4.51	$< .001$
Shift, $\hat{\gamma}_{30}$	0.06	[0.02, 0.09]	3.20	.001	0.04	[0.00, 0.07]	2.21	.027
Grandparent, $\hat{\gamma}_{01}$	-0.05	[-0.15, 0.05]	-1.04	.299	-0.06	[-0.15, 0.04]	-1.17	.243
Working, $\hat{\gamma}_{02}$	0.05	[0.01, 0.09]	2.26	.024	-0.02	[-0.06, 0.02]	-0.88	.378
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.04	[-0.02, 0.09]	1.30	.194	0.03	[-0.01, 0.08]	1.38	.167
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.05	[0.02, 0.07]	3.86	$< .001$	0.04	[0.02, 0.06]	3.73	$< .001$
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.14	[-0.22, -0.06]	-3.37	.001	-0.12	[-0.19, -0.04]	-3.14	.002
Before-slope * Working, $\hat{\gamma}_{12}$	-0.01	[-0.04, 0.01]	-0.86	.389	0.01	[-0.01, 0.03]	0.82	.414
After-slope * Working, $\hat{\gamma}_{22}$	0.02	[0.01, 0.04]	2.94	.003	0.02	[0.00, 0.03]	2.15	.031
Shift * Working, $\hat{\gamma}_{32}$	-0.01	[-0.06, 0.04]	-0.44	.661	-0.01	[-0.05, 0.03]	-0.52	.606
Grandparent * Working, $\hat{\gamma}_{03}$	0.04	[-0.06, 0.14]	0.79	.429	0.11	[0.02, 0.20]	2.33	.020
Before-slope * Grandparent * Working, $\hat{\gamma}_{13}$	-0.02	[-0.08, 0.04]	-0.56	.578	-0.04	[-0.10, 0.02]	-1.34	.179
After-slope * Grandparent * Working, $\hat{\gamma}_{23}$	-0.06	[-0.10, -0.03]	-3.46	.001	-0.05	[-0.08, -0.02]	-3.35	.001
Shift * Grandparent * Working, $\hat{\gamma}_{33}$	0.13	[0.02, 0.23]	2.37	.018	0.12	[0.03, 0.22]	2.62	.009

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *working* = 1 indicates being employed in paid work.

Table S44

Linear Contrasts for Openness (Moderated by Paid Work; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
Shift of not-working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.03	3.80	.051	0.01	1.06	.303
Shift of working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.04	13.84	$<$ .001	0.02	3.72	.054
Shift of not-working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.06	4.22	.040	-0.06	5.04	.025
Shift of working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.02	0.61	.433	0.02	0.75	.385
Shift of not-working controls vs. not-working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.09	7.30	.007	-0.07	6.07	.014
Before-slope of working controls vs. working grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.02	1.23	.267	0.00	0.10	.751
After-slope of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	-0.01	1.08	.299	-0.01	1.00	.317
Shift of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.02	0.93	.336	0.00	0.00	.951
Shift of not-working controls vs. working controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.01	0.48	.487	0.00	0.05	.818
Before-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.03	0.96	.327	-0.03	1.22	.270
After-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	-0.04	5.78	.016	-0.04	7.17	.007
Shift of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.08	4.30	.038	0.08	5.16	.023

Note. The linear contrasts are based on the models from Table S43. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S45

Fixed Effects of Openness Over the Transition to Grandparenthood Moderated by Grandchild Care.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	3.06	[3.01, 3.10]	125.52	$< .001$	3.00	[2.95, 3.06]	103.68	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.08	[-0.01, 0.16]	1.81	.070	0.22	[0.13, 0.30]	5.00	$< .001$
After-slope, $\hat{\gamma}_{10}$	-0.04	[-0.05, -0.03]	-6.73	$< .001$	-0.02	[-0.03, -0.01]	-4.90	$< .001$
Grandparent, $\hat{\gamma}_{01}$	-0.06	[-0.14, 0.01]	-1.74	.082	-0.08	[-0.16, -0.01]	-2.21	.027
Caring, $\hat{\gamma}_{02}$	-0.02	[-0.06, 0.02]	-1.09	.275	0.01	[-0.02, 0.04]	0.67	.503
After-slope * Grandparent, $\hat{\gamma}_{11}$	0.02	[0.00, 0.05]	2.10	.036	0.01	[-0.01, 0.03]	0.88	.377
After-slope * Caring, $\hat{\gamma}_{12}$	0.01	[0.00, 0.03]	1.52	.129	0.00	[-0.02, 0.01]	-0.24	.807
Grandparent * Caring, $\hat{\gamma}_{03}$	0.00	[-0.10, 0.10]	0.02	.985	-0.04	[-0.12, 0.05]	-0.79	.432
After-slope * Grandparent * Caring, $\hat{\gamma}_{13}$	0.01	[-0.02, 0.05]	0.74	.457	0.03	[0.00, 0.06]	1.73	.084

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *caring* = 1 indicates more than 100 hours of grandchild care since the last assessment.

Table S46

Linear Contrasts for Openness (Moderated by Grandchild Care; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
After-slope of caring controls vs. caring grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.04	7.78	.005	0.04	9.46	.002
After-slope of not-caring grandparents vs. caring grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.03	2.58	.108	0.03	3.26	.071

Note. The linear contrasts are based on the models from Table S45. $\hat{\gamma}_c$ = combined fixed-effects estimate.

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Table S47

Fixed Effects of Life Satisfaction Over the Transition to Grandparenthood.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	5.11	[4.99, 5.23]	85.63	$< .001$	5.13	[4.99, 5.27]	72.47	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.07	[-0.10, 0.24]	0.78	.433	0.01	[-0.15, 0.17]	0.17	.863
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.02, 0.01]	-1.06	.288	0.02	[0.00, 0.03]	2.18	.029
After-slope, $\hat{\gamma}_{20}$	0.01	[0.00, 0.02]	2.13	.033	-0.01	[-0.02, 0.01]	-0.93	.351
Shift, $\hat{\gamma}_{30}$	0.02	[-0.04, 0.08]	0.72	.470	-0.11	[-0.17, -0.05]	-3.42	.001
Grandparent, $\hat{\gamma}_{01}$	0.07	[-0.11, 0.25]	0.73	.464	0.07	[-0.13, 0.26]	0.66	.510
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.02	[-0.01, 0.04]	1.03	.301	-0.01	[-0.04, 0.02]	-0.47	.637
After-slope * Grandparent, $\hat{\gamma}_{21}$	-0.02	[-0.05, 0.00]	-1.78	.075	0.00	[-0.03, 0.02]	-0.33	.741
Shift * Grandparent, $\hat{\gamma}_{31}$	0.05	[-0.08, 0.18]	0.79	.428	0.18	[0.04, 0.32]	2.57	.010
HRS								
Intercept, $\hat{\gamma}_{00}$	4.81	[4.69, 4.92]	82.17	$< .001$	4.58	[4.45, 4.72]	66.89	$< .001$
Propensity score, $\hat{\gamma}_{02}$	0.40	[0.19, 0.61]	3.78	$< .001$	0.33	[0.11, 0.54]	3.01	.003
Before-slope, $\hat{\gamma}_{10}$	-0.03	[-0.07, 0.01]	-1.53	.125	0.05	[0.01, 0.08]	2.50	.013
After-slope, $\hat{\gamma}_{20}$	0.01	[-0.01, 0.04]	0.83	.405	0.04	[0.01, 0.06]	3.14	.002
Shift, $\hat{\gamma}_{30}$	0.02	[-0.05, 0.10]	0.58	.564	-0.05	[-0.12, 0.02]	-1.50	.135
Grandparent, $\hat{\gamma}_{01}$	-0.02	[-0.21, 0.16]	-0.24	.812	0.20	[0.00, 0.39]	1.98	.048
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.12	[0.03, 0.21]	2.58	.010	0.05	[-0.04, 0.13]	1.06	.290
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.03	[-0.02, 0.09]	1.17	.241	0.01	[-0.05, 0.06]	0.31	.753
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.08	[-0.24, 0.09]	-0.93	.351	-0.01	[-0.17, 0.15]	-0.13	.897

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

Table S48

Linear Contrasts for Life Satisfaction.

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.03	1.76	.185	-0.12	17.14	$< .001$
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.06	1.51	.219	0.06	1.29	.256
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.03	0.24	.622	0.18	8.25	.004
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.01	0.39	.532	0.01	0.32	.574
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	-0.01	0.84	.358	-0.01	0.70	.403
HRS						
Shift of the controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.03	1.26	.262	-0.02	0.30	.581
Shift of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.01	0.04	.833	-0.02	0.10	.754
Shift of the controls vs. shift of the grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	0.49	.485	0.00	0.00	.978
Before-slope of the grandparents vs. 0 ($\hat{\gamma}_{10} + \hat{\gamma}_{11}$)	0.09	4.51	.034	0.09	5.61	.018
After-slope of the grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{21}$)	0.04	2.98	.084	0.05	3.67	.055

Note. The linear contrasts are needed in cases where estimates of interest are represented by multiple fixed-effects coefficients and are computed using the *linearHypothesis* function from the *car* R package (Fox & Weisberg, 2019) based on the models from Table S47. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S49

Fixed Effects of Life Satisfaction Over the Transition to Grandparenthood Moderated by Gender.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
LISS								
Intercept, $\hat{\gamma}_{00}$	5.05	[4.89, 5.21]	61.49	< .001	5.05	[4.86, 5.24]	51.98	< .001
Propensity score, $\hat{\gamma}_{04}$	0.06	[-0.11, 0.23]	0.70	.485	0.01	[-0.15, 0.17]	0.17	.866
Before-slope, $\hat{\gamma}_{10}$	-0.01	[-0.03, 0.01]	-1.13	.258	0.02	[0.00, 0.05]	2.28	.023
After-slope, $\hat{\gamma}_{20}$	0.01	[0.00, 0.03]	1.55	.122	-0.03	[-0.04, -0.01]	-2.76	.006
Shift, $\hat{\gamma}_{30}$	0.10	[0.01, 0.18]	2.25	.025	0.00	[-0.09, 0.09]	-0.01	.988
Grandparent, $\hat{\gamma}_{01}$	0.21	[-0.04, 0.46]	1.67	.096	0.23	[-0.04, 0.50]	1.65	.099
Female, $\hat{\gamma}_{02}$	0.12	[-0.08, 0.32]	1.18	.239	0.16	[-0.08, 0.40]	1.28	.203
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.04, 0.04]	0.10	.922	-0.03	[-0.08, 0.01]	-1.38	.168
After-slope * Grandparent, $\hat{\gamma}_{21}$	-0.03	[-0.07, 0.01]	-1.62	.104	0.01	[-0.03, 0.05]	0.36	.718
Shift * Grandparent, $\hat{\gamma}_{31}$	0.01	[-0.18, 0.20]	0.10	.919	0.11	[-0.10, 0.31]	1.03	.303
Before-slope * Female, $\hat{\gamma}_{12}$	0.01	[-0.02, 0.03]	0.55	.581	-0.02	[-0.04, 0.01]	-1.10	.273
After-slope * Female, $\hat{\gamma}_{22}$	0.00	[-0.02, 0.02]	-0.11	.913	0.04	[0.01, 0.06]	2.95	.003
Shift * Female, $\hat{\gamma}_{32}$	-0.14	[-0.26, -0.02]	-2.37	.018	-0.21	[-0.33, -0.08]	-3.28	.001
Grandparent * Female, $\hat{\gamma}_{03}$	-0.27	[-0.59, 0.05]	-1.67	.097	-0.31	[-0.66, 0.05]	-1.71	.088
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.03	[-0.03, 0.08]	0.87	.385	0.05	[-0.02, 0.11]	1.48	.138
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	0.01	[-0.04, 0.07]	0.51	.607	-0.03	[-0.08, 0.03]	-0.90	.369
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.08	[-0.17, 0.34]	0.63	.530	0.15	[-0.13, 0.43]	1.07	.283
HRS								
Intercept, $\hat{\gamma}_{00}$	4.67	[4.52, 4.82]	60.70	< .001	4.54	[4.37, 4.71]	52.50	< .001
Propensity score, $\hat{\gamma}_{04}$	0.41	[0.20, 0.62]	3.84	< .001	0.30	[0.08, 0.51]	2.71	.007
Before-slope, $\hat{\gamma}_{10}$	0.01	[-0.04, 0.07]	0.49	.625	0.05	[-0.01, 0.10]	1.61	.107
After-slope, $\hat{\gamma}_{20}$	0.00	[-0.04, 0.04]	0.09	.931	0.02	[-0.01, 0.06]	1.31	.190
Shift, $\hat{\gamma}_{30}$	0.07	[-0.04, 0.18]	1.23	.220	-0.16	[-0.27, -0.05]	-2.91	.004
Grandparent, $\hat{\gamma}_{01}$	0.11	[-0.15, 0.37]	0.81	.419	0.25	[-0.02, 0.51]	1.82	.070
Female, $\hat{\gamma}_{02}$	0.24	[0.07, 0.41]	2.75	.006	0.10	[-0.10, 0.29]	0.98	.329
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.00	[-0.13, 0.14]	0.03	.978	-0.02	[-0.15, 0.11]	-0.33	.745
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.04	[-0.04, 0.13]	1.05	.294	0.03	[-0.05, 0.10]	0.62	.536
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.08	[-0.33, 0.16]	-0.65	.514	0.14	[-0.10, 0.37]	1.16	.246
Before-slope * Female, $\hat{\gamma}_{12}$	-0.08	[-0.16, 0.00]	-2.08	.037	0.01	[-0.07, 0.08]	0.14	.887
After-slope * Female, $\hat{\gamma}_{22}$	0.02	[-0.03, 0.07]	0.64	.525	0.02	[-0.03, 0.07]	0.84	.399
Shift * Female, $\hat{\gamma}_{32}$	-0.09	[-0.24, 0.06]	-1.14	.254	0.19	[0.05, 0.33]	2.59	.010

Table S49 continued

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Grandparent * Female, $\hat{\gamma}_{03}$	-0.23	[-0.55, 0.09]	-1.42	.156	-0.08	[-0.40, 0.25]	-0.47	.637
Before-slope * Grandparent * Female, $\hat{\gamma}_{13}$	0.21	[0.03, 0.39]	2.28	.023	0.11	[-0.05, 0.28]	1.34	.181
After-slope * Grandparent * Female, $\hat{\gamma}_{23}$	-0.02	[-0.13, 0.09]	-0.37	.714	-0.03	[-0.13, 0.08]	-0.50	.615
Shift * Grandparent * Female, $\hat{\gamma}_{33}$	0.01	[-0.32, 0.34]	0.06	.954	-0.26	[-0.57, 0.05]	-1.63	.103

Note. Two models were computed for each of the two samples (LISS, HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval.

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Table S50

Linear Contrasts for Life Satisfaction (Moderated by Gender).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
LISS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.11	8.55	.003	-0.03	0.42	.515
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.03	0.77	.379	-0.20	26.82	$< .001$
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.09	1.42	.233	0.09	1.17	.279
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.04	0.39	.531	0.04	0.35	.552
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.02	0.07	.794	0.12	1.58	.208
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.03	1.96	.161	0.01	0.47	.493
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	-0.02	0.99	.320	-0.02	0.86	.353
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	0.07	0.92	.338	0.24	8.27	.004
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.14	7.55	.006	-0.17	9.46	.002
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.03	1.56	.211	0.03	1.23	.267
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.01	0.27	.602	0.01	0.22	.638
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.05	0.21	.647	-0.04	0.16	.690
HRS						
Shift of male controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.07	2.68	.101	-0.14	10.20	.001
Shift of female controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.00	0.00	.973	0.07	4.01	.045
Shift of grandfathers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.04	0.17	.680	0.03	0.12	.732
Shift of grandmothers vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$	-0.05	0.37	.541	-0.05	0.48	.489
Shift of male controls vs. grandfathers ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	-0.04	0.15	.700	0.16	3.22	.073
Before-slope of female controls vs. grandmothers ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.21	12.04	.001	0.09	2.72	.099
After-slope of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	0.02	0.38	.540	0.00	0.00	.953
Shift of female controls vs. grandmothers ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.05	0.31	.575	-0.12	2.31	.129
Shift of male vs. female controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.07	1.44	.229	0.21	13.91	$< .001$
Before-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.13	2.33	.127	0.12	2.41	.121
After-slope of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.00	0.01	.931	-0.01	0.02	.894
Shift of grandfathers vs. grandmothers ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.08	0.52	.471	-0.08	0.52	.470

Note. The linear contrasts are based on the models from Table S49. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S51

Fixed Effects of Life Satisfaction Over the Transition to Grandparenthood Moderated by Performing Paid Work.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	4.78	[4.63, 4.93]	62.86	$< .001$	4.55	[4.38, 4.71]	53.96	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.36	[0.15, 0.57]	3.33	.001	0.28	[0.06, 0.50]	2.50	.012
Before-slope, $\hat{\gamma}_{10}$	-0.06	[-0.13, 0.01]	-1.77	.077	-0.02	[-0.09, 0.05]	-0.51	.613
After-slope, $\hat{\gamma}_{20}$	-0.03	[-0.07, 0.00]	-1.73	.083	0.08	[0.04, 0.12]	4.32	$< .001$
Shift, $\hat{\gamma}_{30}$	0.13	[0.01, 0.25]	2.11	.034	0.07	[-0.05, 0.19]	1.17	.243
Grandparent, $\hat{\gamma}_{01}$	-0.02	[-0.33, 0.30]	-0.09	.925	0.22	[-0.09, 0.53]	1.37	.169
Working, $\hat{\gamma}_{02}$	0.07	[-0.07, 0.22]	0.99	.324	0.12	[-0.02, 0.25]	1.64	.102
Before-slope * Grandparent, $\hat{\gamma}_{11}$	0.14	[-0.04, 0.32]	1.50	.134	0.10	[-0.07, 0.27]	1.12	.264
After-slope * Grandparent, $\hat{\gamma}_{21}$	0.07	[-0.02, 0.15]	1.57	.116	-0.05	[-0.12, 0.03]	-1.20	.231
Shift * Grandparent, $\hat{\gamma}_{31}$	-0.04	[-0.31, 0.22]	-0.31	.755	0.01	[-0.24, 0.27]	0.10	.917
Before-slope * Working, $\hat{\gamma}_{12}$	0.05	[-0.03, 0.14]	1.21	.225	0.09	[0.00, 0.17]	1.99	.047
After-slope * Working, $\hat{\gamma}_{22}$	0.10	[0.05, 0.15]	3.83	$< .001$	-0.08	[-0.13, -0.03]	-3.16	.002
Shift * Working, $\hat{\gamma}_{32}$	-0.20	[-0.35, -0.04]	-2.50	.012	-0.15	[-0.30, 0.00]	-1.94	.052
Grandparent * Working, $\hat{\gamma}_{03}$	-0.02	[-0.36, 0.32]	-0.11	.912	-0.07	[-0.39, 0.25]	-0.42	.676
Before-slope * Grandparent * Working, $\hat{\gamma}_{13}$	-0.03	[-0.24, 0.18]	-0.28	.777	-0.06	[-0.26, 0.13]	-0.63	.527
After-slope * Grandparent * Working, $\hat{\gamma}_{23}$	-0.08	[-0.20, 0.03]	-1.40	.161	0.10	[-0.01, 0.21]	1.79	.073
Shift * Grandparent * Working, $\hat{\gamma}_{33}$	-0.03	[-0.38, 0.32]	-0.18	.859	-0.09	[-0.42, 0.24]	-0.54	.590

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *working* = 1 indicates being employed in paid work.

Table S52

Linear Contrasts for Life Satisfaction (Moderated by Paid Work; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
Shift of not-working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30}$)	0.10	3.85	.050	0.15	9.24	.002
Shift of working controls vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{22} + \hat{\gamma}_{32}$)	0.00	0.00	.969	-0.08	5.03	.025
Shift of not-working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.12	1.47	.226	0.12	1.63	.201
Shift of working grandparents vs. 0 ($\hat{\gamma}_{20} + \hat{\gamma}_{30} + \hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.09	1.57	.210	-0.10	2.13	.144
Shift of not-working controls vs. not-working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31}$)	0.02	0.04	.834	-0.03	0.10	.746
Before-slope of working controls vs. working grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	0.11	3.95	.047	0.03	0.44	.505
After-slope of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{23}$)	-0.02	0.17	.676	0.05	1.82	.178
Shift of working controls vs. working grandparents ($\hat{\gamma}_{21} + \hat{\gamma}_{31} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.09	1.21	.270	-0.03	0.11	.746
Shift of not-working controls vs. working controls ($\hat{\gamma}_{22} + \hat{\gamma}_{32}$)	-0.10	2.47	.116	-0.23	13.96	$< .001$
Before-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	0.02	0.05	.823	0.02	0.05	.818
After-slope of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{23}$)	0.02	0.12	.727	0.02	0.17	.678
Shift of not-working grandparents vs. working grandparents ($\hat{\gamma}_{22} + \hat{\gamma}_{32} + \hat{\gamma}_{23} + \hat{\gamma}_{33}$)	-0.21	2.87	.090	-0.22	3.48	.062

Note. The linear contrasts are based on the models from Table S51. $\hat{\gamma}_c$ = combined fixed-effects estimate.

Table S53

Fixed Effects of Life Satisfaction Over the Transition to Grandparenthood Moderated by Grandchild Care.

	Parent controls				Nonparent controls			
Parameter	$\hat{\gamma}$	95% CI	t	p	$\hat{\gamma}$	95% CI	t	p
Intercept, $\hat{\gamma}_{00}$	4.86	[4.72, 5.00]	67.71	$< .001$	4.75	[4.58, 4.92]	55.25	$< .001$
Propensity score, $\hat{\gamma}_{04}$	0.27	[0.01, 0.53]	2.05	.040	0.05	[-0.21, 0.31]	0.35	.728
After-slope, $\hat{\gamma}_{10}$	0.00	[-0.04, 0.03]	-0.02	.986	0.03	[0.00, 0.06]	1.99	.047
Grandparent, $\hat{\gamma}_{01}$	0.00	[-0.22, 0.21]	-0.04	.967	0.17	[-0.06, 0.40]	1.45	.148
Caring, $\hat{\gamma}_{02}$	-0.10	[-0.22, 0.02]	-1.67	.094	0.02	[-0.09, 0.12]	0.34	.738
After-slope * Grandparent, $\hat{\gamma}_{11}$	0.07	[0.00, 0.14]	1.85	.065	0.04	[-0.02, 0.11]	1.24	.216
After-slope * Caring, $\hat{\gamma}_{12}$	0.04	[-0.01, 0.10]	1.70	.089	-0.01	[-0.06, 0.03]	-0.59	.557
Grandparent * Caring, $\hat{\gamma}_{03}$	0.32	[0.02, 0.62]	2.08	.038	0.21	[-0.07, 0.48]	1.45	.147
After-slope * Grandparent * Caring, $\hat{\gamma}_{13}$	-0.08	[-0.19, 0.03]	-1.40	.162	-0.03	[-0.13, 0.08]	-0.51	.613

Note. Two models were computed (only HRS): grandparents matched with parent controls and with nonparent controls. CI = confidence interval. *caring* = 1 indicates more than 100 hours of grandchild care since the last assessment.

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Table S54

Linear Contrasts for Life Satisfaction (Moderated by Grandchild Care; only HRS).

	Parent controls			Nonparent controls		
Linear Contrast	$\hat{\gamma}_c$	χ^2	p	$\hat{\gamma}_c$	χ^2	p
After-slope of caring controls vs. caring grandparents ($\hat{\gamma}_{11} + \hat{\gamma}_{13}$)	-0.01	0.10	.751	0.01	0.13	.722
After-slope of not-caring grandparents vs. caring grandparents ($\hat{\gamma}_{12} + \hat{\gamma}_{13}$)	-0.04	0.49	.486	-0.04	0.73	.392

Note. The linear contrasts are based on the models from Table S53. $\hat{\gamma}_c$ = combined fixed-effects estimate.

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Table S55

Tests of Heterogeneous Random Slope Variance Models for Agreeableness Against Comparison Models With a Uniform Random Slope Variance.

	Parent controls					Nonparent controls				
	Var.	SD	LR	p	GP greater	Var.	SD	LR	p	GP greater
LISS										
Before-slope: uniform	0.00	0.04				0.00	0.04			
Before-slope: heterogeneous (controls)	0.00	0.05				0.00	0.05			
Before-slope: heterogeneous (grandparents)	0.00	0.04	9.72	.021	no	0.00	0.03	17.01	< .001	no
After-slope: uniform	0.00	0.04				0.00	0.04			
After-slope: heterogeneous (controls)	0.00	0.04				0.00	0.04			
After-slope: heterogeneous (grandparents)	0.00	0.03	3.34	.343	no	0.00	0.03	9.22	.026	no
Shift: uniform	0.03	0.16				0.02	0.15			
Shift: heterogeneous (controls)	0.03	0.17				0.03	0.16			
Shift: heterogeneous (grandparents)	0.02	0.13	3.79	.285	no	0.01	0.12	7.32	.062	no
HRS										
Before-slope: uniform	0.01	0.12				0.01	0.12			
Before-slope: heterogeneous (controls)	0.02	0.15				0.02	0.15			
Before-slope: heterogeneous (grandparents)	0.01	0.12	75.87	< .001	no	0.02	0.14	82.20	< .001	no
After-slope: uniform	0.01	0.10				0.01	0.11			
After-slope: heterogeneous (controls)	0.01	0.11				0.02	0.13			
After-slope: heterogeneous (grandparents)	0.01	0.08	37.85	< .001	no	0.01	0.09	69.06	< .001	no
Shift: uniform	0.06	0.25				0.07	0.26			
Shift: heterogeneous (controls)	0.08	0.28				0.09	0.29			
Shift: heterogeneous (grandparents)	0.05	0.22	68.99	< .001	no	0.06	0.24	91.90	< .001	no

Note. The heterogeneous variance models ($df = 16$) differ only in the random effects from the comparison models ($df = 13$). In addition to two random slope variances (instead of one), the heterogeneous variance models estimate two additional random intercept/slope covariances. Both models estimate heterogeneous random intercept variances for the grandparent and control groups. *Var.* = random slope variance; *SD* = standard deviation; *LR* = likelihood ratio; *p* = p-value (of the LR test); *GP greater* = indicating if the random slope variance of the grandparents is larger than that of either control group.

Table S56

Tests of Heterogeneous Random Slope Variance Models for Conscientiousness Against Comparison Models With a Uniform Random Slope Variance.

	Parent controls					Nonparent controls				
	Var.	SD	LR	p	GP greater	Var.	SD	LR	p	GP greater
LISS										
Before-slope: uniform	0.00	0.04				0.00	0.04			
Before-slope: heterogeneous (controls)	0.00	0.05				0.00	0.05			
Before-slope: heterogeneous (grandparents)	0.00	0.02	45.09	< .001	no	0.00	0.02	26.46	< .001	no
After-slope: uniform	0.00	0.04				0.00	0.04			
After-slope: heterogeneous (controls)	0.00	0.05				0.00	0.04			
After-slope: heterogeneous (grandparents)	0.00	0.03	18.06	< .001	no	0.00	0.03	8.69	.034	no
Shift: uniform	0.03	0.16				0.02	0.14			
Shift: heterogeneous (controls)	0.04	0.19				0.02	0.16			
Shift: heterogeneous (grandparents)	0.02	0.12	21.47	< .001	no	0.01	0.11	8.86	.031	no
HRS										
Before-slope: uniform	0.01	0.11				0.01	0.11			
Before-slope: heterogeneous (controls)	0.02	0.14				0.02	0.14			
Before-slope: heterogeneous (grandparents)	0.01	0.11	92.92	< .001	no	0.02	0.13	103.88	< .001	no
After-slope: uniform	0.01	0.10				0.01	0.10			
After-slope: heterogeneous (controls)	0.01	0.11				0.01	0.12			
After-slope: heterogeneous (grandparents)	0.01	0.09	61.33	< .001	no	0.01	0.09	77.41	< .001	no
Shift: uniform	0.06	0.24				0.06	0.25			
Shift: heterogeneous (controls)	0.07	0.27				0.08	0.28			
Shift: heterogeneous (grandparents)	0.06	0.23	83.05	< .001	no	0.06	0.25	97.85	< .001	no

Note. The heterogeneous variance models ($df = 16$) differ only in the random effects from the comparison models ($df = 13$). In addition to two random slope variances (instead of one), the heterogeneous variance models estimate two additional random intercept/slope covariances. Both models estimate heterogeneous random intercept variances for the grandparent and control groups. *Var.* = random slope variance; *SD* = standard deviation; *LR* = likelihood ratio; *p* = p-value (of the LR test); *GP greater* = indicating if the random slope variance of the grandparents is larger than that of either control group.

Table S57

Tests of Heterogeneous Random Slope Variance Models for Extraversion Against Comparison Models With a Uniform Random Slope Variance.

	Parent controls					Nonparent controls				
	Var.	SD	LR	p	GP greater	Var.	SD	LR	p	GP greater
LISS										
Before-slope: uniform	0.00	0.05				0.00	0.05			
Before-slope: heterogeneous (controls)	0.00	0.06				0.00	0.06			
Before-slope: heterogeneous (grandparents)	0.00	0.04	14.67	.002	no	0.00	0.04	25.96	< .001	no
After-slope: uniform	0.00	0.04				0.00	0.05			
After-slope: heterogeneous (controls)	0.00	0.04				0.00	0.05			
After-slope: heterogeneous (grandparents)	0.00	0.03	7.37	.061	no	0.00	0.03	13.50	.004	no
Shift: uniform	0.03	0.17				0.03	0.18			
Shift: heterogeneous (controls)	0.04	0.19				0.04	0.21			
Shift: heterogeneous (grandparents)	0.01	0.12	11.13	.011	no	0.02	0.13	13.00	.005	no
HRS										
Before-slope: uniform	0.02	0.12				0.01	0.12			
Before-slope: heterogeneous (controls)	0.02	0.15				0.02	0.14			
Before-slope: heterogeneous (grandparents)	0.01	0.12	59.59	< .001	no	0.02	0.13	61.85	< .001	no
After-slope: uniform	0.01	0.10				0.01	0.12			
After-slope: heterogeneous (controls)	0.01	0.11				0.02	0.14			
After-slope: heterogeneous (grandparents)	0.01	0.09	27.05	< .001	no	0.01	0.10	61.55	< .001	no
Shift: uniform	0.07	0.26				0.08	0.29			
Shift: heterogeneous (controls)	0.08	0.29				0.10	0.32			
Shift: heterogeneous (grandparents)	0.06	0.25	44.54	< .001	no	0.07	0.26	70.11	< .001	no

Note. The heterogeneous variance models ($df = 16$) differ only in the random effects from the comparison models ($df = 13$). In addition to two random slope variances (instead of one), the heterogeneous variance models estimate two additional random intercept/slope covariances. Both models estimate heterogeneous random intercept variances for the grandparent and control groups. *Var.* = random slope variance; *SD* = standard deviation; *LR* = likelihood ratio; *p* = p-value (of the LR test); *GP greater* = indicating if the random slope variance of the grandparents is larger than that of either control group.

Table S58

Tests of Heterogeneous Random Slope Variance Models for Neuroticism Against Comparison Models With a Uniform Random Slope Variance.

	Parent controls					Nonparent controls				
	Var.	SD	LR	p	GP greater	Var.	SD	LR	p	GP greater
LISS										
Before-slope: uniform	0.00	0.06				0.00	0.07			
Before-slope: heterogeneous (controls)	0.00	0.06				0.01	0.08			
Before-slope: heterogeneous (grandparents)	0.00	0.06	3.74	.291	yes	0.00	0.06	19.38	< .001	no
After-slope: uniform	0.00	0.05				0.00	0.06			
After-slope: heterogeneous (controls)	0.00	0.05				0.00	0.07			
After-slope: heterogeneous (grandparents)	0.00	0.05	1.09	.781	no	0.00	0.05	6.22	.101	no
Shift: uniform	0.04	0.20				0.06	0.24			
Shift: heterogeneous (controls)	0.04	0.20				0.07	0.26			
Shift: heterogeneous (grandparents)	0.04	0.21	3.32	.344	yes	0.05	0.21	3.27	.352	no
HRS										
Before-slope: uniform	0.02	0.15				0.02	0.15			
Before-slope: heterogeneous (controls)	0.03	0.19				0.03	0.18			
Before-slope: heterogeneous (grandparents)	0.03	0.17	95.90	< .001	no	0.03	0.18	73.45	< .001	yes
After-slope: uniform	0.01	0.12				0.02	0.12			
After-slope: heterogeneous (controls)	0.02	0.13				0.02	0.15			
After-slope: heterogeneous (grandparents)	0.01	0.10	79.78	< .001	no	0.01	0.11	101.07	< .001	no
Shift: uniform	0.10	0.31				0.10	0.32			
Shift: heterogeneous (controls)	0.13	0.35				0.13	0.36			
Shift: heterogeneous (grandparents)	0.09	0.29	116.36	< .001	no	0.09	0.30	116.43	< .001	no

Note. The heterogeneous variance models ($df = 16$) differ only in the random effects from the comparison models ($df = 13$). In addition to two random slope variances (instead of one), the heterogeneous variance models estimate two additional random intercept/slope covariances. Both models estimate heterogeneous random intercept variances for the grandparent and control groups. *Var.* = random slope variance; *SD* = standard deviation; *LR* = likelihood ratio; *p* = p-value (of the LR test); *GP greater* = indicating if the random slope variance of the grandparents is larger than that of either control group.

Table S59

Tests of Heterogeneous Random Slope Variance Models for Openness Against Comparison Models With a Uniform Random Slope Variance.

	Parent controls					Nonparent controls				
	Var.	SD	LR	p	GP greater	Var.	SD	LR	p	GP greater
LISS										
Before-slope: uniform	0.00	0.04				0.00	0.03			
Before-slope: heterogeneous (controls)	0.00	0.05				0.00	0.04			
Before-slope: heterogeneous (grandparents)	0.00	0.04	19.82	< .001	no	0.00	0.04	25.90	< .001	yes
After-slope: uniform	0.00	0.04				0.00	0.03			
After-slope: heterogeneous (controls)	0.00	0.05				0.00	0.03			
After-slope: heterogeneous (grandparents)	0.00	0.02	26.80	< .001	no	0.00	0.02	9.20	.027	no
Shift: uniform	0.03	0.16				0.02	0.13			
Shift: heterogeneous (controls)	0.03	0.18				0.02	0.14			
Shift: heterogeneous (grandparents)	0.01	0.10	17.96	< .001	no	0.02	0.12	10.36	.016	no
HRS										
Before-slope: uniform	0.01	0.11				0.01	0.12			
Before-slope: heterogeneous (controls)	0.02	0.14				0.02	0.14			
Before-slope: heterogeneous (grandparents)	0.01	0.09	55.99	< .001	no	0.02	0.14	50.54	< .001	no
After-slope: uniform	0.01	0.10				0.01	0.11			
After-slope: heterogeneous (controls)	0.01	0.11				0.02	0.13			
After-slope: heterogeneous (grandparents)	0.01	0.09	37.59	< .001	no	0.01	0.10	50.64	< .001	no
Shift: uniform	0.07	0.26				0.07	0.27			
Shift: heterogeneous (controls)	0.08	0.28				0.09	0.30			
Shift: heterogeneous (grandparents)	0.06	0.24	58.39	< .001	no	0.07	0.26	67.21	< .001	no

Note. The heterogeneous variance models ($df = 16$) differ only in the random effects from the comparison models ($df = 13$). In addition to two random slope variances (instead of one), the heterogeneous variance models estimate two additional random intercept/slope covariances. Both models estimate heterogeneous random intercept variances for the grandparent and control groups. *Var.* = random slope variance; *SD* = standard deviation; *LR* = likelihood ratio; *p* = p-value (of the LR test); *GP greater* = indicating if the random slope variance of the grandparents is larger than that of either control group.

Table S60

Tests of Heterogeneous Random Slope Variance Models for Life Satisfaction Against Comparison Models With a Uniform Random Slope Variance.

	Parent controls					Nonparent controls				
	Var.	SD	LR	p	GP greater	Var.	SD	LR	p	GP greater
LISS										
Before-slope: uniform	0.01	0.11				0.01	0.10			
Before-slope: heterogeneous (controls)	0.02	0.13				0.01	0.12			
Before-slope: heterogeneous (grandparents)	0.02	0.14	41.47	< .001	yes	0.01	0.12	21.10	< .001	no
After-slope: uniform	0.01	0.11				0.01	0.12			
After-slope: heterogeneous (controls)	0.01	0.10				0.01	0.12			
After-slope: heterogeneous (grandparents)	0.02	0.13	11.74	.008	yes	0.02	0.12	5.26	.154	yes
Shift: uniform	0.20	0.45				0.18	0.42			
Shift: heterogeneous (controls)	0.19	0.44				0.17	0.41			
Shift: heterogeneous (grandparents)	0.25	0.50	10.00	.019	yes	0.21	0.46	4.50	.212	yes
HRS										
Before-slope: uniform	0.14	0.37				0.14	0.37			
Before-slope: heterogeneous (controls)	0.28	0.53				0.22	0.47			
Before-slope: heterogeneous (grandparents)	0.26	0.50	140.31	< .001	no	0.34	0.58	111.97	< .001	yes
After-slope: uniform	0.10	0.32				0.14	0.37			
After-slope: heterogeneous (controls)	0.13	0.36				0.21	0.46			
After-slope: heterogeneous (grandparents)	0.08	0.28	93.14	< .001	no	0.10	0.32	108.41	< .001	no
Shift: uniform	0.83	0.91				0.93	0.96			
Shift: heterogeneous (controls)	1.07	1.04				1.24	1.11			
Shift: heterogeneous (grandparents)	0.80	0.89	172.53	< .001	no	0.91	0.96	153.16	< .001	no

Note. The heterogeneous variance models ($df = 16$) differ only in the random effects from the comparison models ($df = 13$). In addition to two random slope variances (instead of one), the heterogeneous variance models estimate two additional random intercept/slope covariances. Both models estimate heterogeneous random intercept variances for the grandparent and control groups. *Var.* = random slope variance; *SD* = standard deviation; *LR* = likelihood ratio; *p* = p-value (of the LR test); *GP greater* = indicating if the random slope variance of the grandparents is larger than that of either control group.

Table S61

Rank-order stability.

	Parent controls				Nonparent controls			
Outcome	Cor_{all}	Cor_{GP}	Cor_{con}	p	Cor_{all}	Cor_{GP}	Cor_{con}	p
LISS								
Agreeableness	0.80	0.81	0.80	.983	0.75	0.81	0.74	.005
Conscientiousness	0.77	0.80	0.76	.099	0.79	0.80	0.79	.362
Extraversion	0.82	0.87	0.81	.959	0.87	0.87	0.87	.094
Neuroticism	0.71	0.76	0.69	.176	0.78	0.76	0.79	.531
Openness	0.75	0.78	0.74	.359	0.78	0.78	0.78	.893
Life Satisfaction	0.72	0.72	0.72	.965	0.70	0.72	0.69	.121
HRS								
Agreeableness	0.68	0.70	0.67	.506	0.73	0.70	0.74	.304
Conscientiousness	0.71	0.69	0.72	.201	0.70	0.69	0.70	.467
Extraversion	0.72	0.75	0.71	.007	0.74	0.75	0.74	.029
Neuroticism	0.66	0.71	0.65	.654	0.68	0.71	0.67	.709
Openness	0.69	0.73	0.67	.015	0.76	0.73	0.76	.241
Life Satisfaction	0.51	0.55	0.50	.090	0.55	0.55	0.55	.439

Note. Correlations as indicators of rank-order stability and p-values of the interactions between each outcome at the last pre-transition assessment and the *grandparent* variable in regression models predicting the first available post-transition assessment. The average time lags in years between these two assessments are 2.36 ($SD = 0.68$) for the LISS parent sample, 2.37 ($SD = 0.69$) for the LISS nonparent sample, 4.15 ($SD = 0.77$) for the HRS parent sample, and 4.11 ($SD = 0.67$) for the HRS nonparent sample. Cor_{all} = rank-order stability; Cor_{GP} = rank-order stability (only grandparents); Cor_{con} = rank-order stability (only controls).

Supplemental Figures

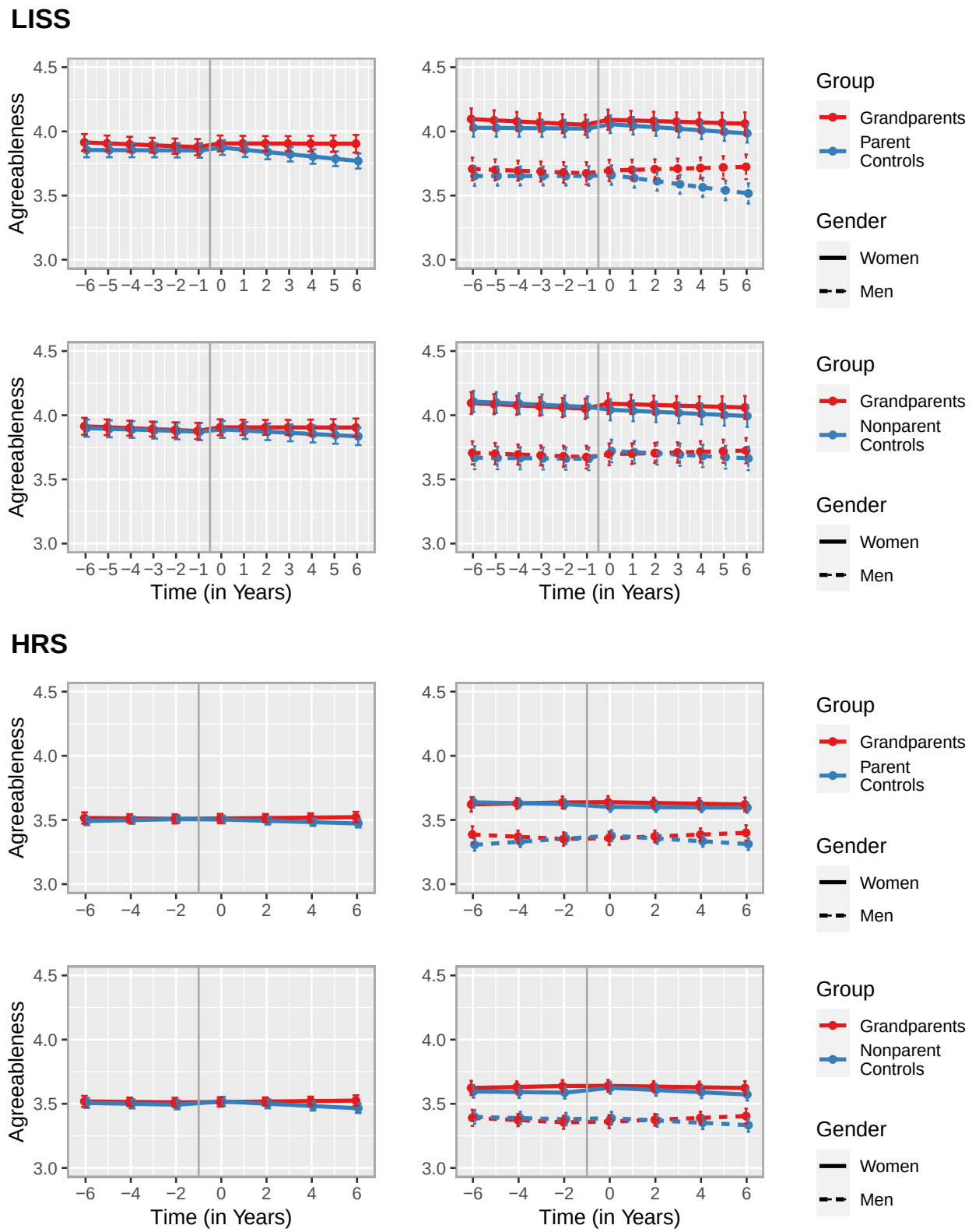

Figure S1

Change trajectories of agreeableness based on the basic models (left column) and the models including the gender interaction (right column). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood.

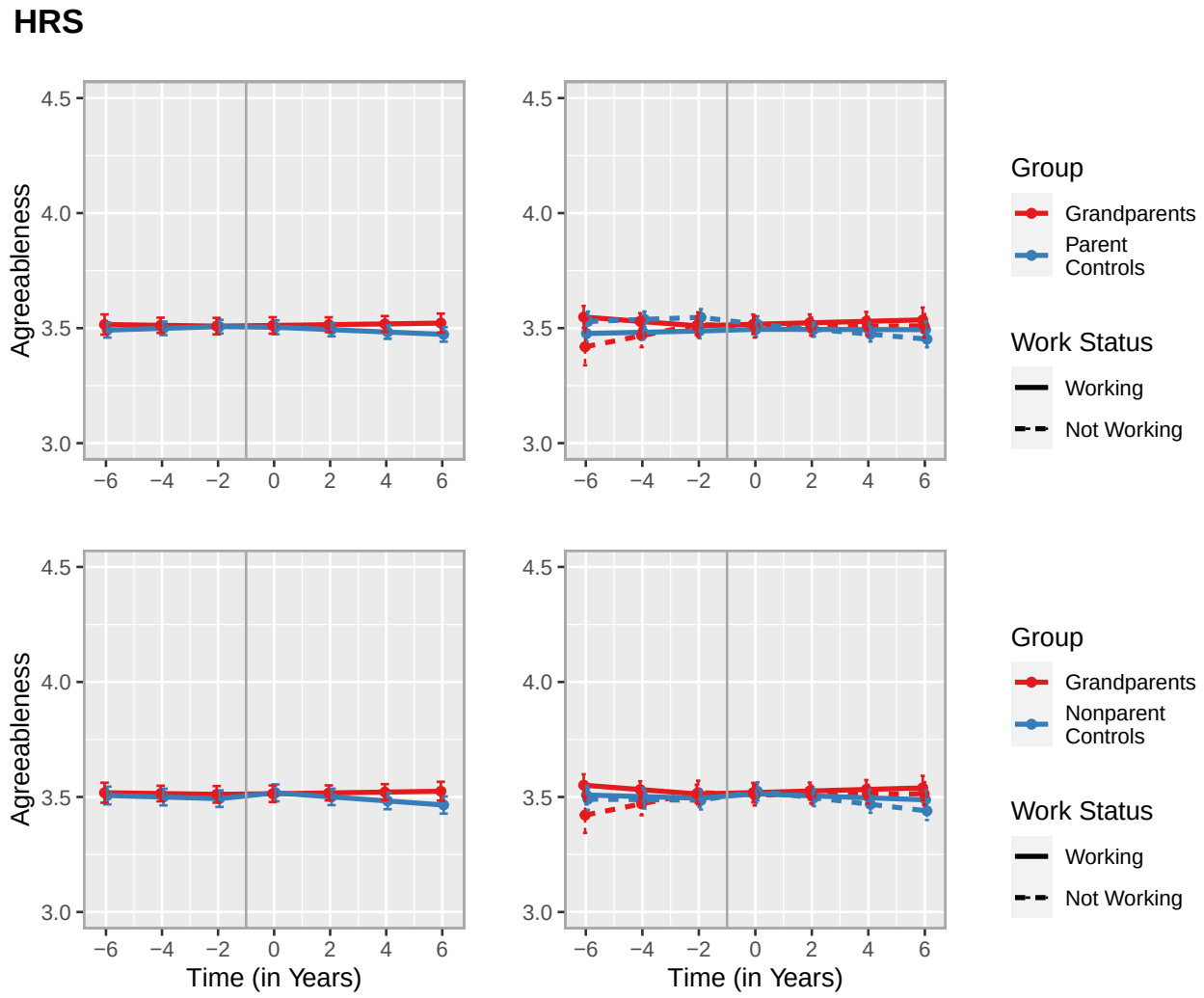

Figure S2

Change trajectories of agreeableness based on the models of moderation by paid work (see Table S11). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood. The plots in the left column are the same as in Figure S1 (basic models) and added here for better comparability.

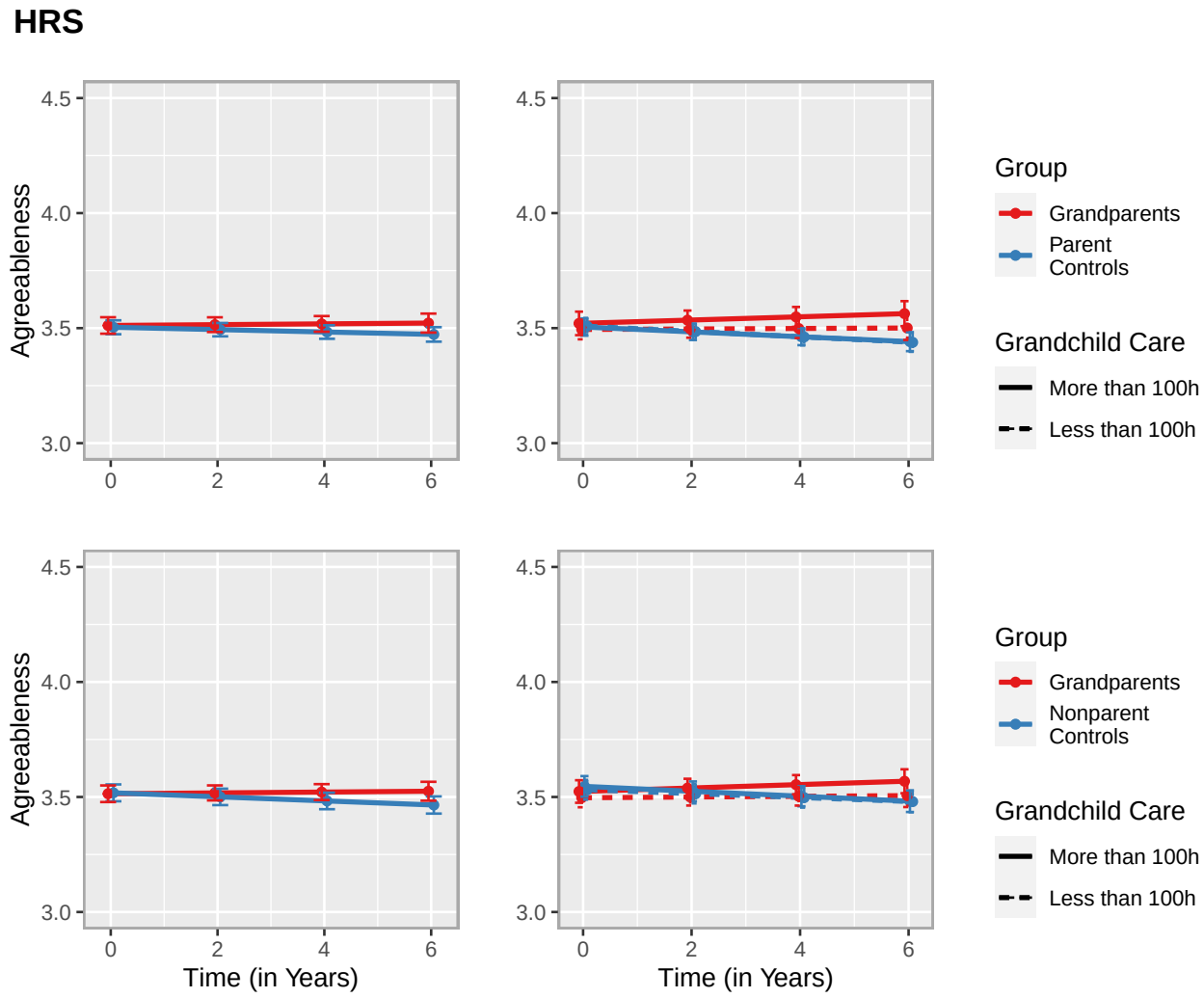

Figure S3

Change trajectories of agreeableness based on the models of moderation by grandchild care (see Table S13). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The plots in the left column are the same as in Figure S1 (basic models) but restricted to the post-transition period for better comparability.

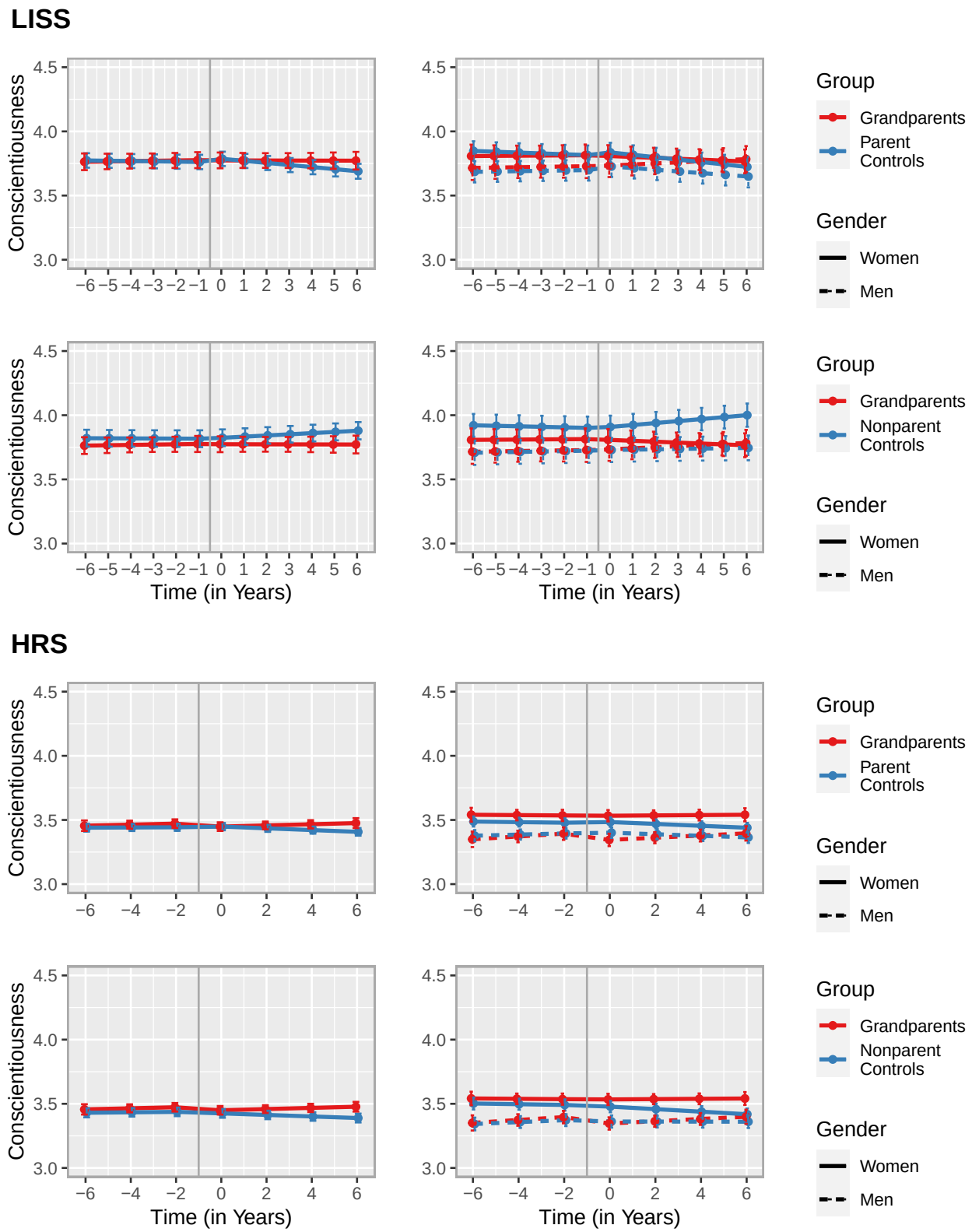

Figure S4

Change trajectories of conscientiousness based on the basic models (left column) and the models including the gender interaction (right column). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood.

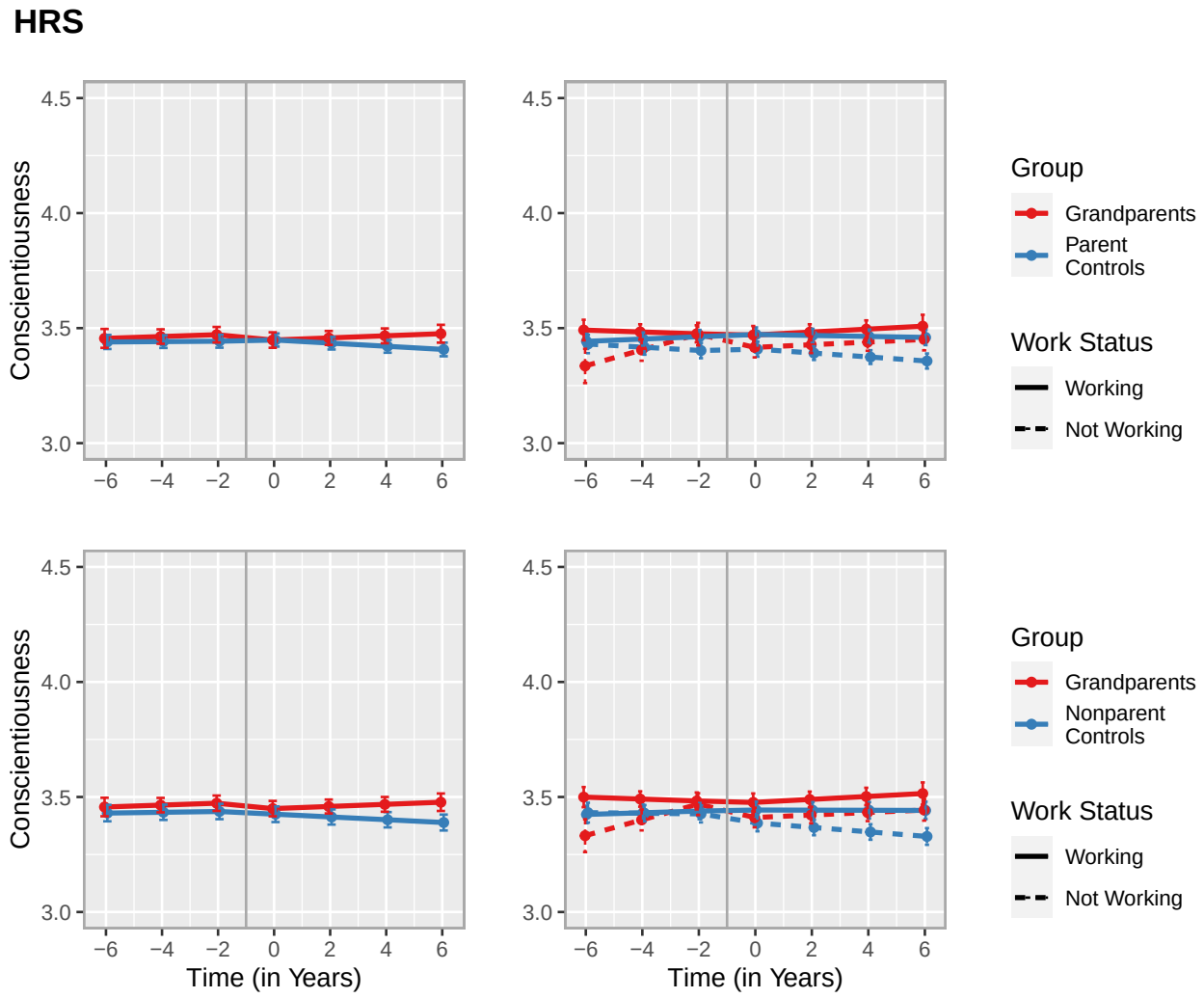

Figure S5

Change trajectories of conscientiousness based on the models of moderation by paid work (see Table S19). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood. The plots in the left column are the same as in Figure S4 (basic models) and added here for better comparability.

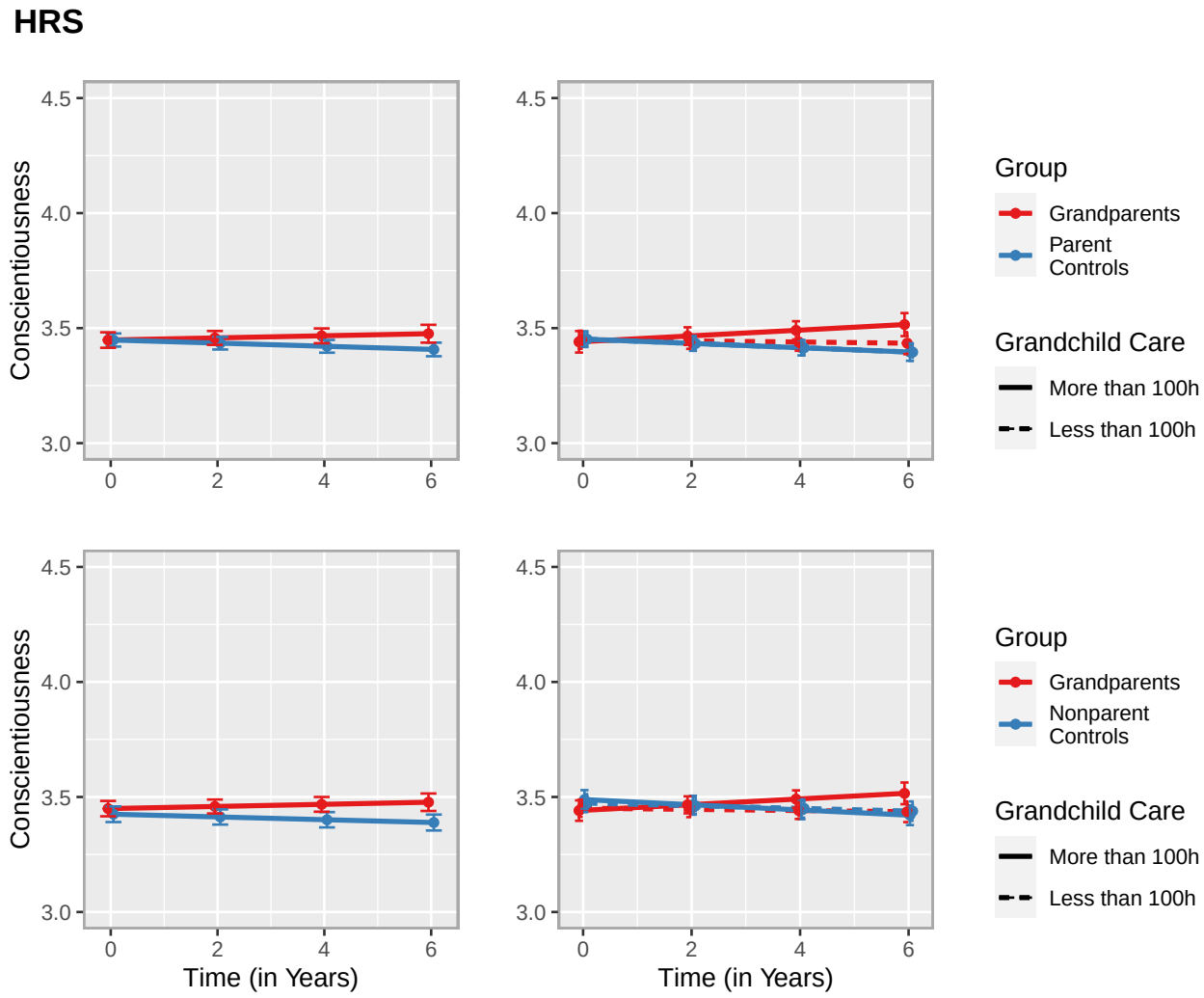

Figure S6

Change trajectories of conscientiousness based on the models of moderation by grandchild care (see Table S21). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The plots in the left column are the same as in Figure S4 (basic models) but restricted to the post-transition period for better comparability.

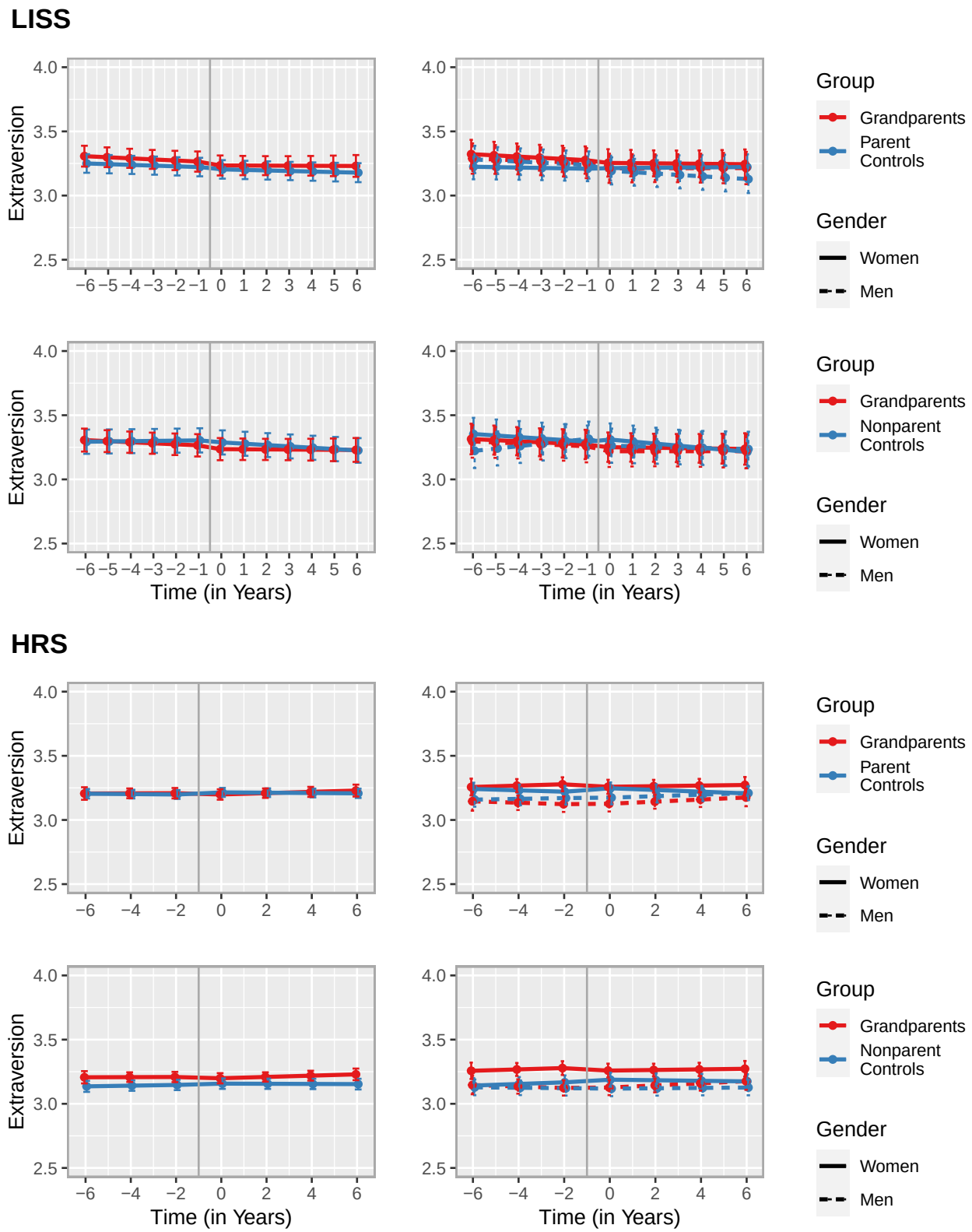

Figure S7

Change trajectories of extraversion based on the basic models (left column) and the models including the gender interaction (right column). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood.

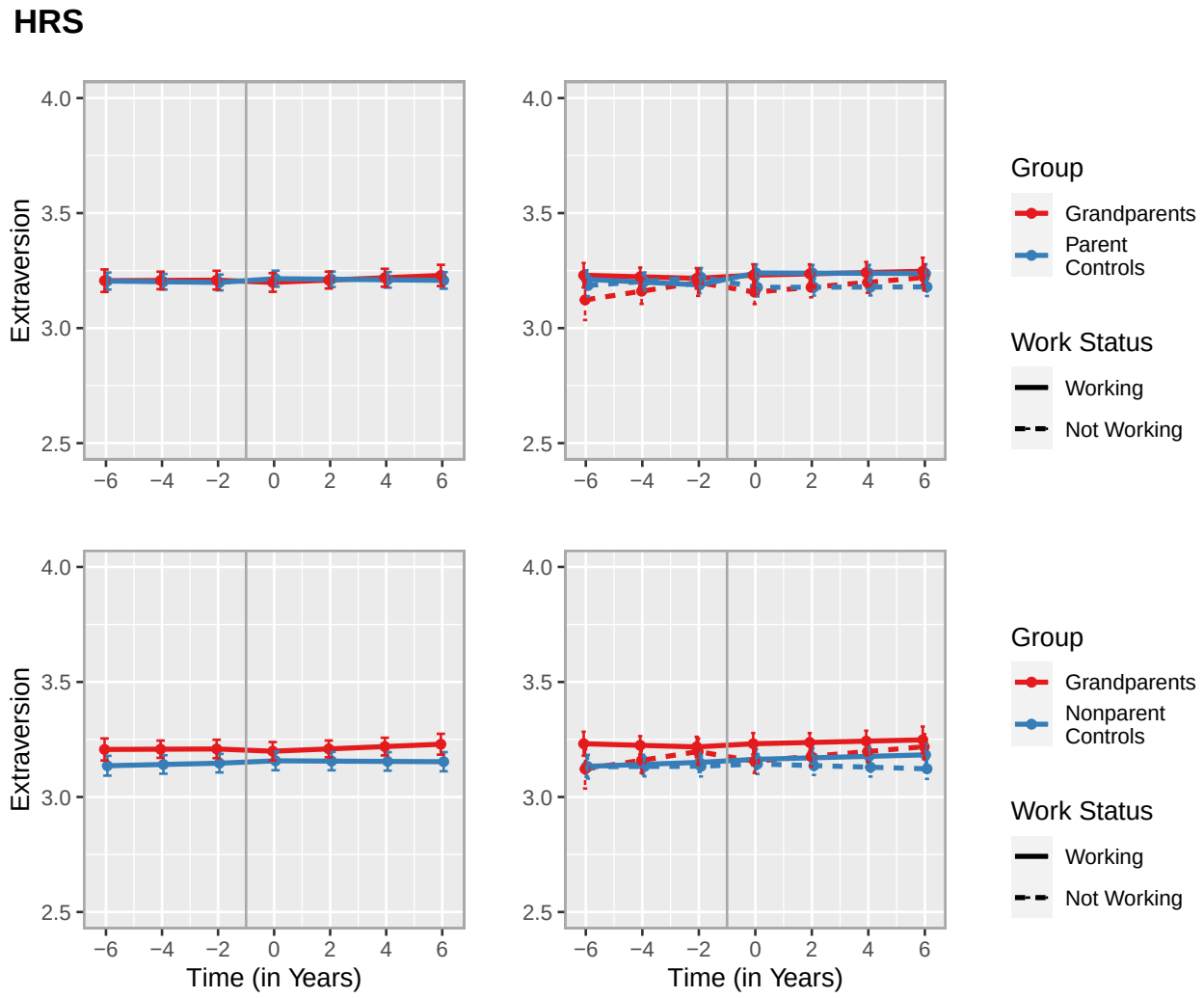

Figure S8

Change trajectories of extraversion based on the models of moderation by paid work (see Table S27). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood. The plots in the left column are the same as in Figure S7 (basic models) and added here for better comparability.

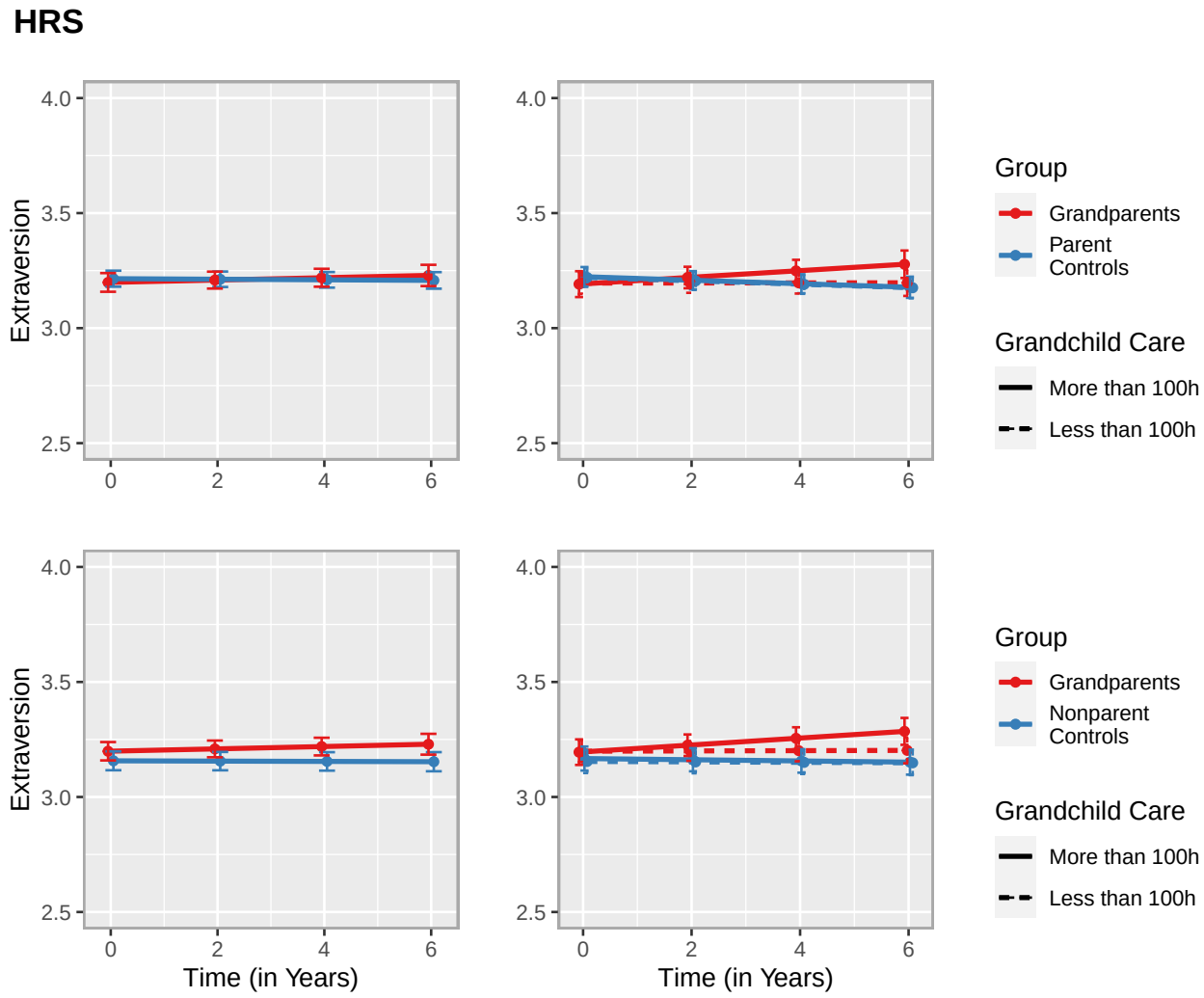

Figure S9

Change trajectories of extraversion based on the models of moderation by grandchild care (see Table S29). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The plots in the left column are the same as in Figure S7 (basic models) but restricted to the post-transition period for better comparability.

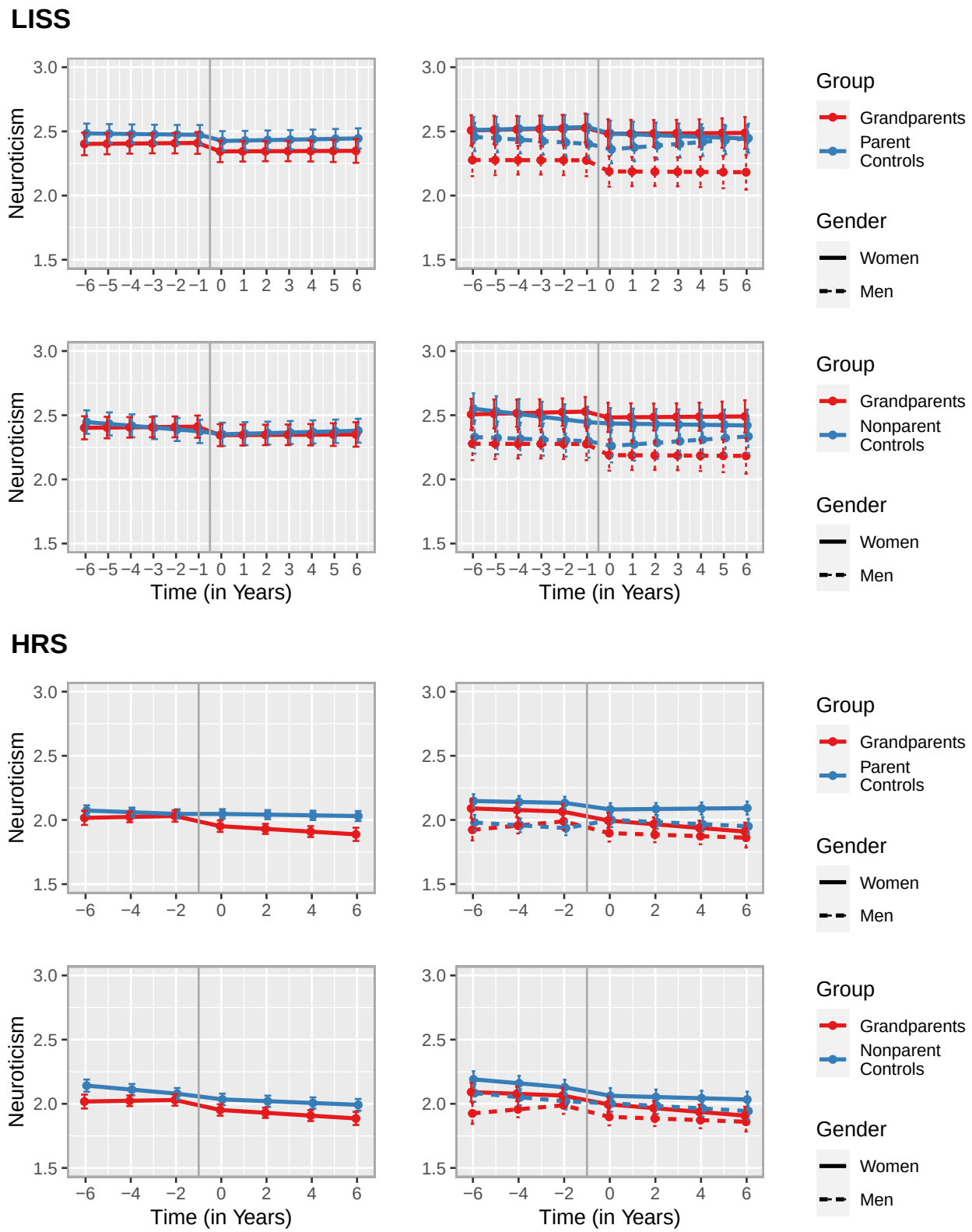

Figure S10

Change trajectories of neuroticism based on the basic models (left column) and the models including the gender interaction (right column). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood.

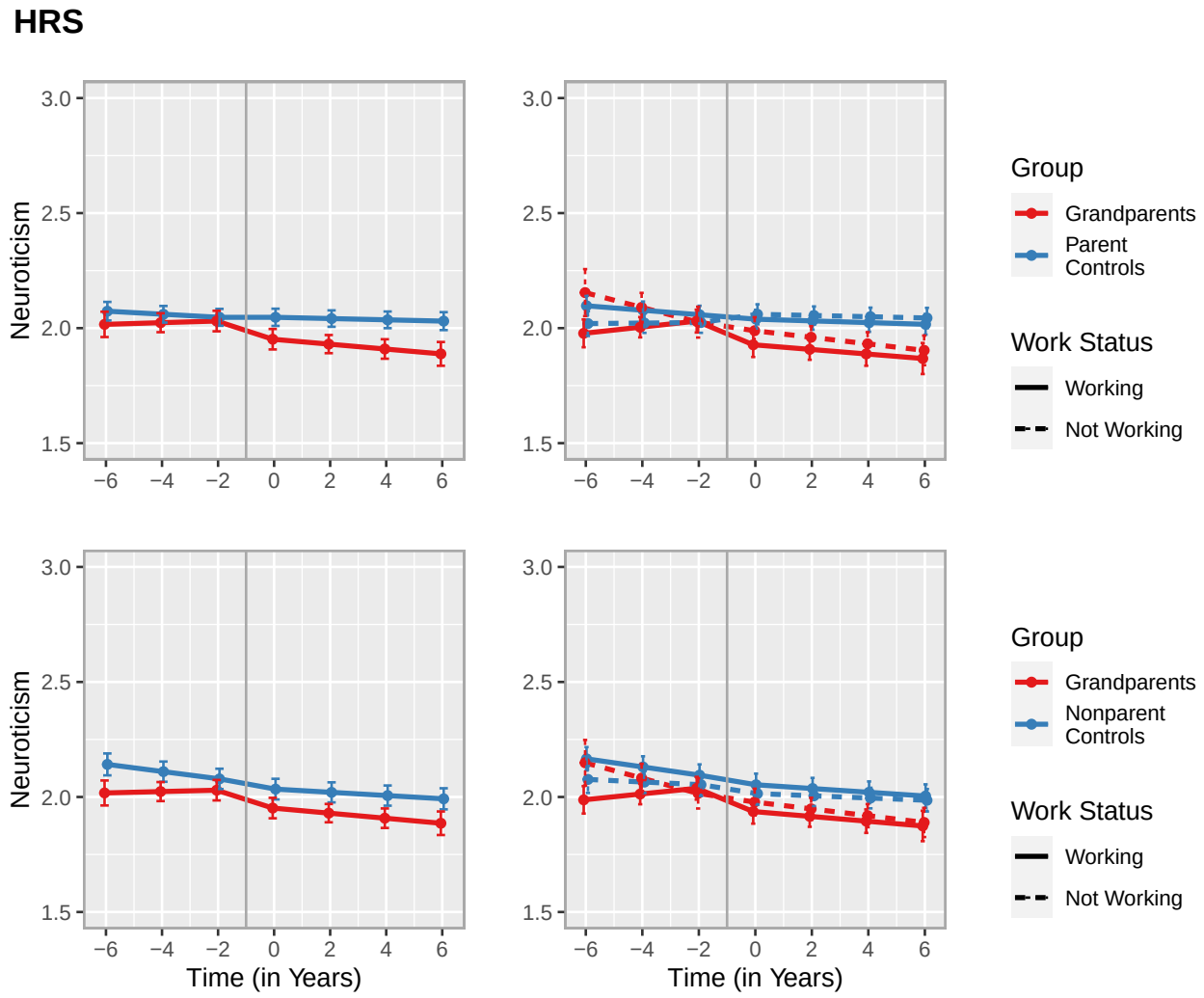

Figure S11

Change trajectories of neuroticism based on the models of moderation by paid work (see Table S35). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood. The plots in the left column are the same as in Figure S10 (basic models) and added here for better comparability.

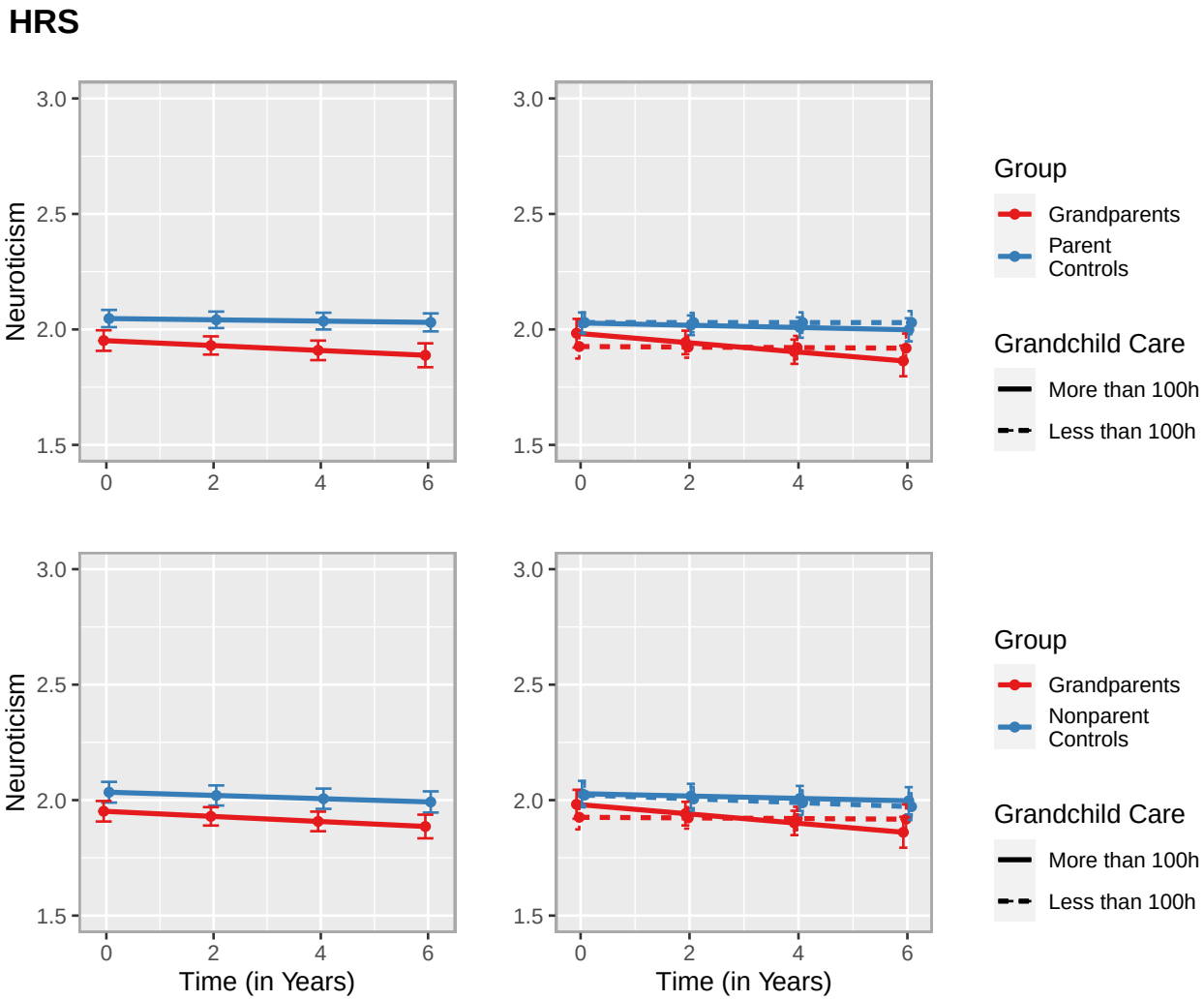

Figure S12

Change trajectories of neuroticism based on the models of moderation by grandchild care (see Table S37). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The plots in the left column are the same as in Figure S10 (basic models) but restricted to the post-transition period for better comparability.

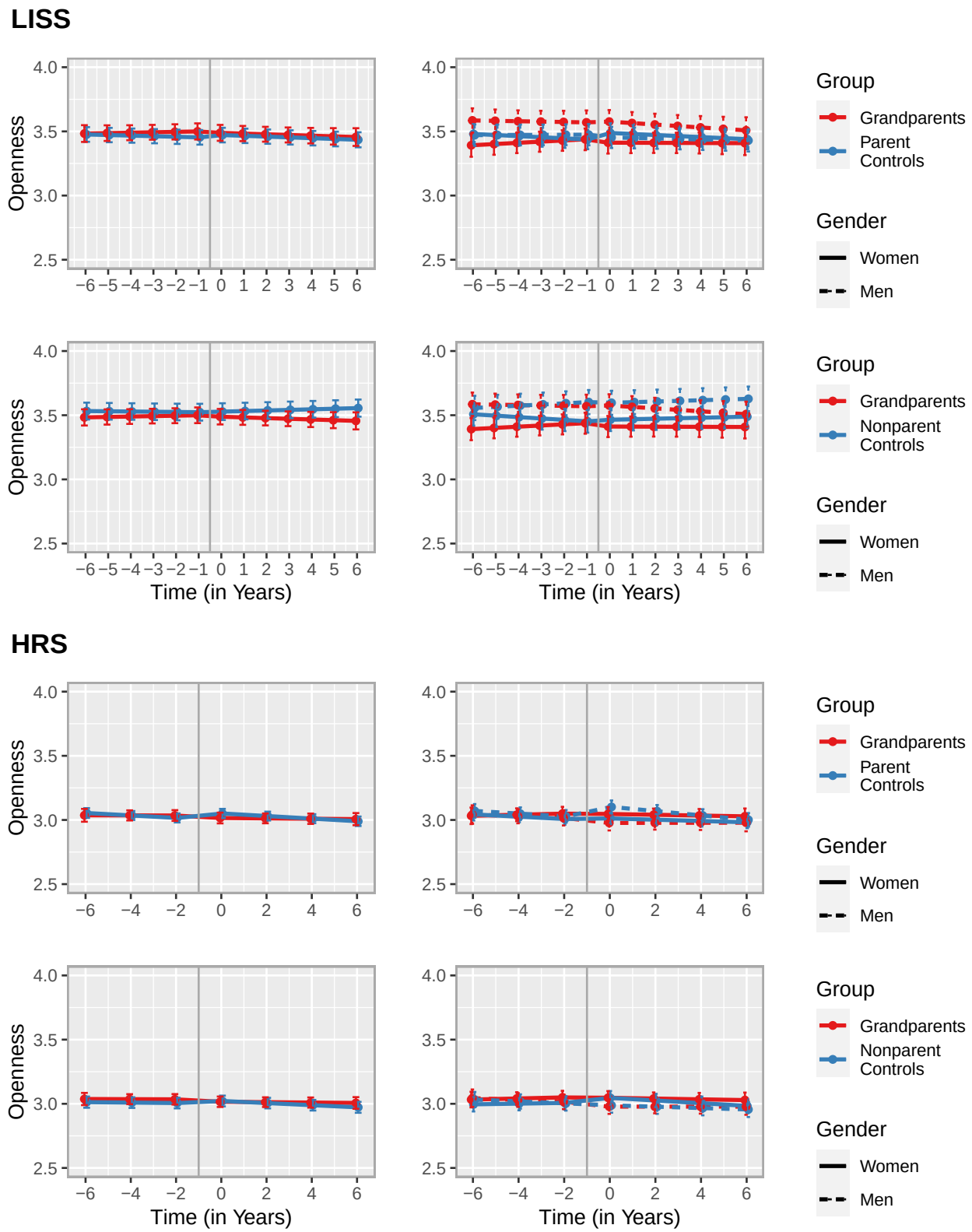

Figure S13

Change trajectories of openness based on the basic models (left column) and the models including the gender interaction (right column). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood.

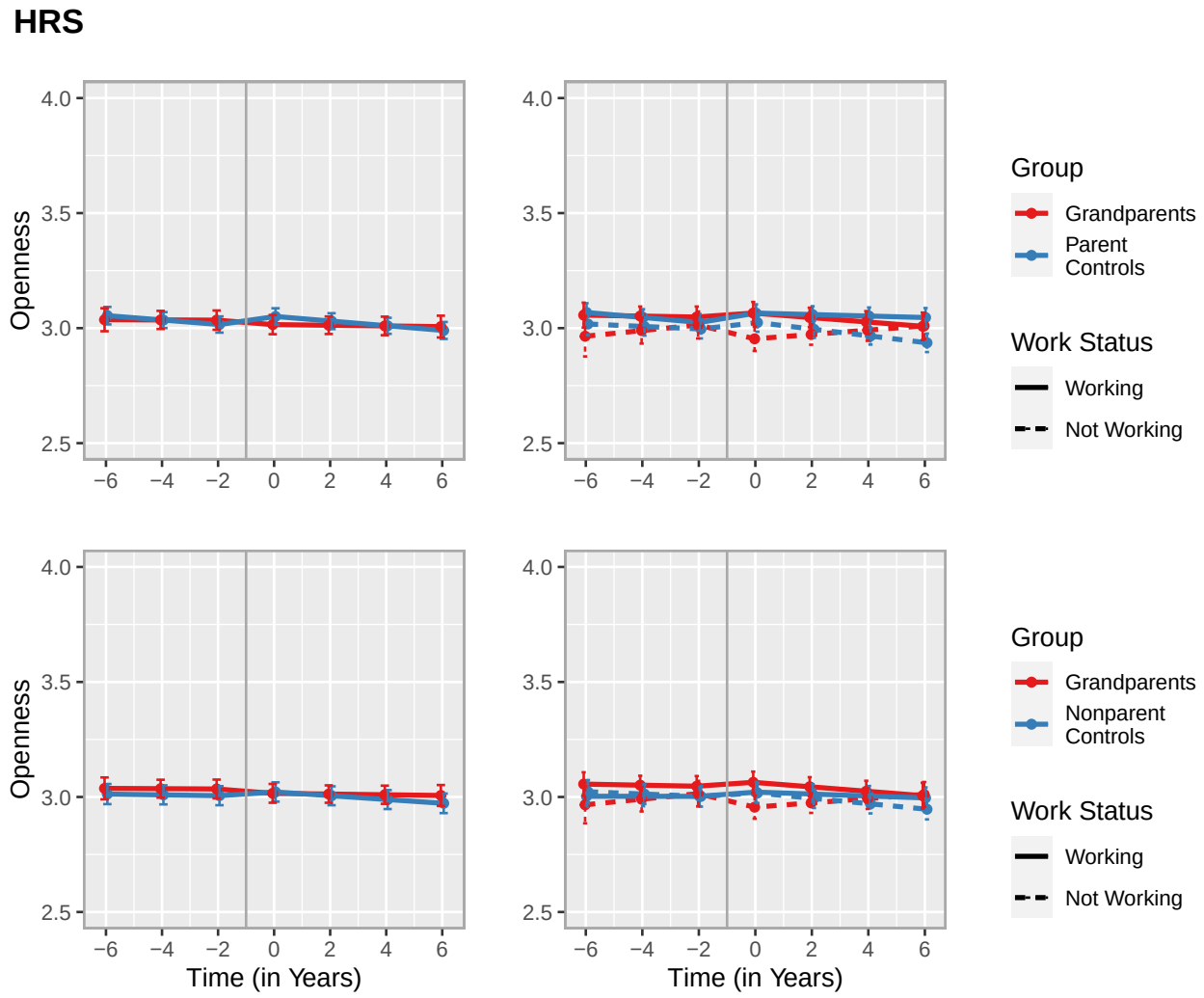

Figure S14

Change trajectories of openness based on the models of moderation by paid work (see Table S43). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood. The plots in the left column are the same as in Figure S13 (basic models) and added here for better comparability.

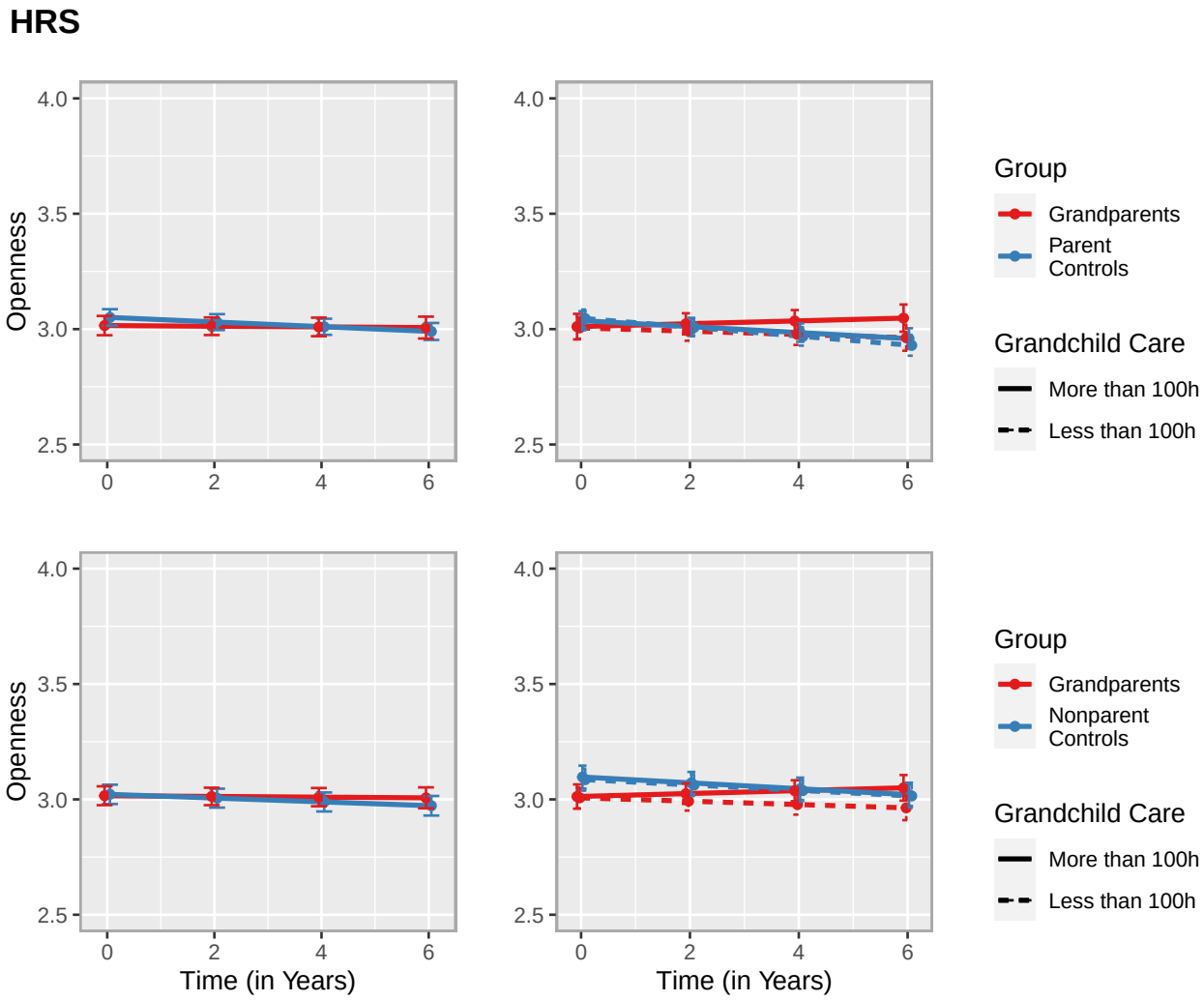

Figure S15

Change trajectories of openness based on the models of moderation by grandchild care (see Table S45). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The plots in the left column are the same as in Figure S13 (basic models) but restricted to the post-transition period for better comparability.

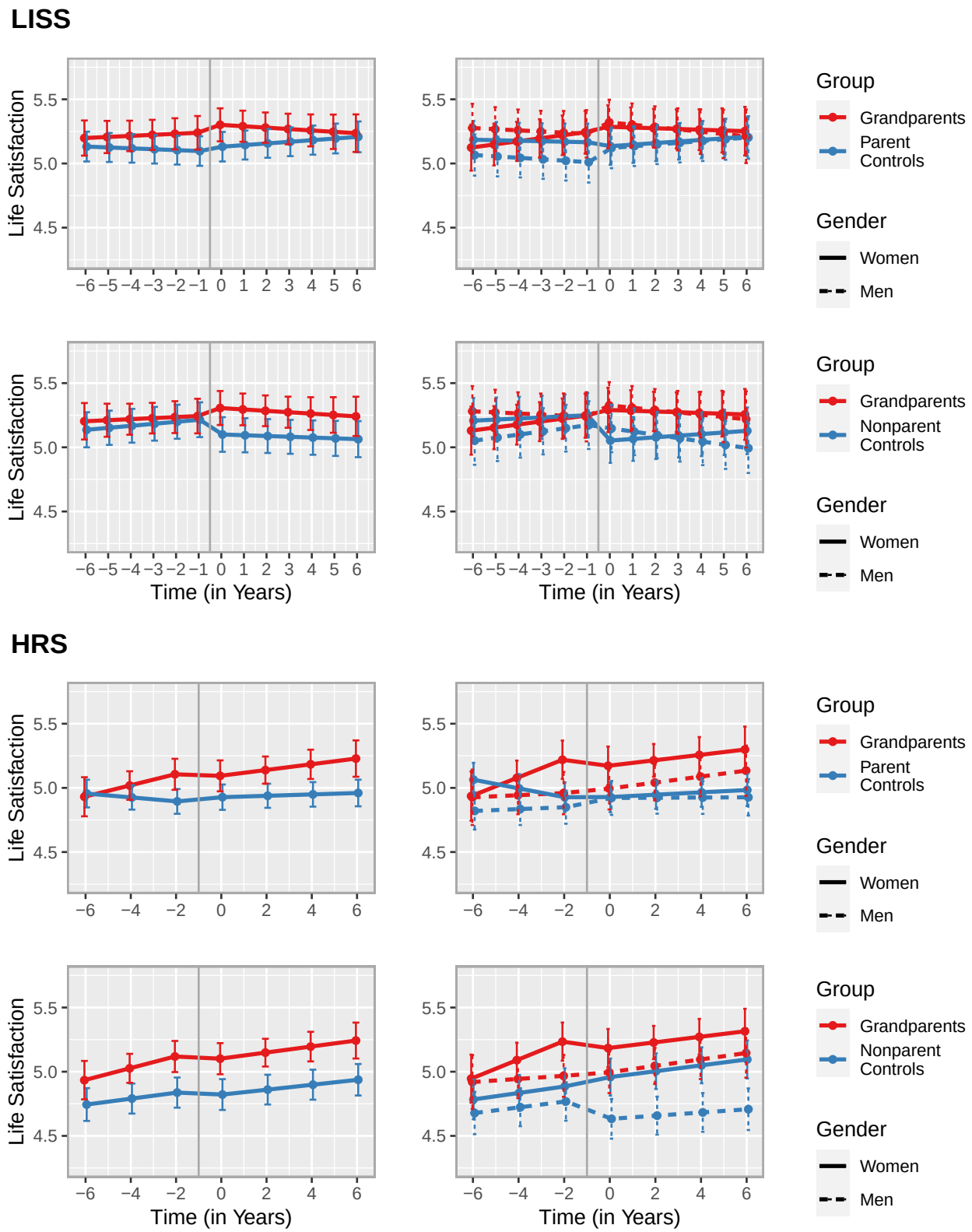

Figure S16

Change trajectories of life satisfaction based on the basic models (left column) and the models including the gender interaction (right column). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood.

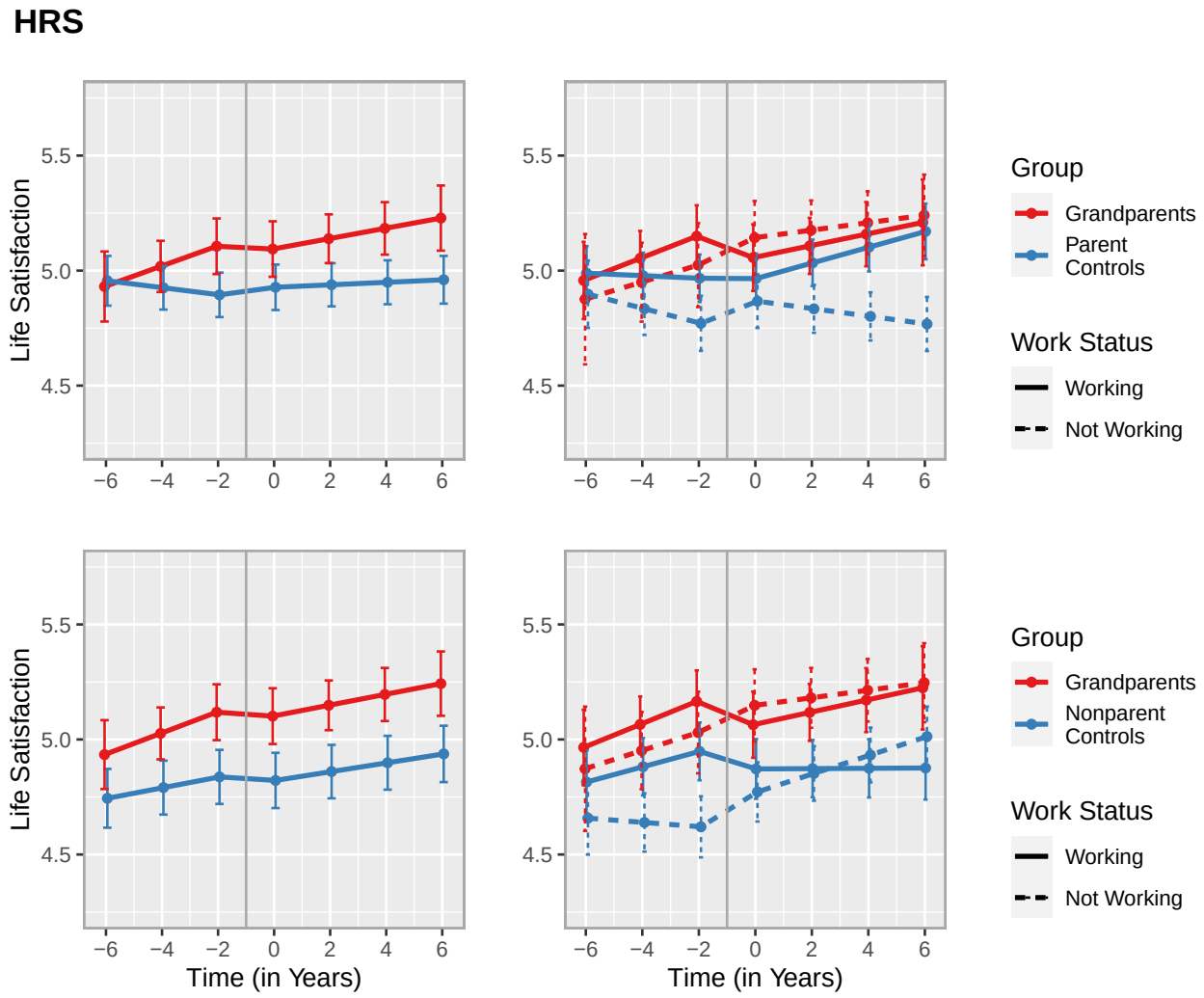

Figure S17

Change trajectories of life satisfaction based on the models of moderation by paid work (see Table S51). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The vertical line indicates the approximate time of the transition to grandparenthood. The plots in the left column are the same as in Figure S16 (basic models) and added here for better comparability.

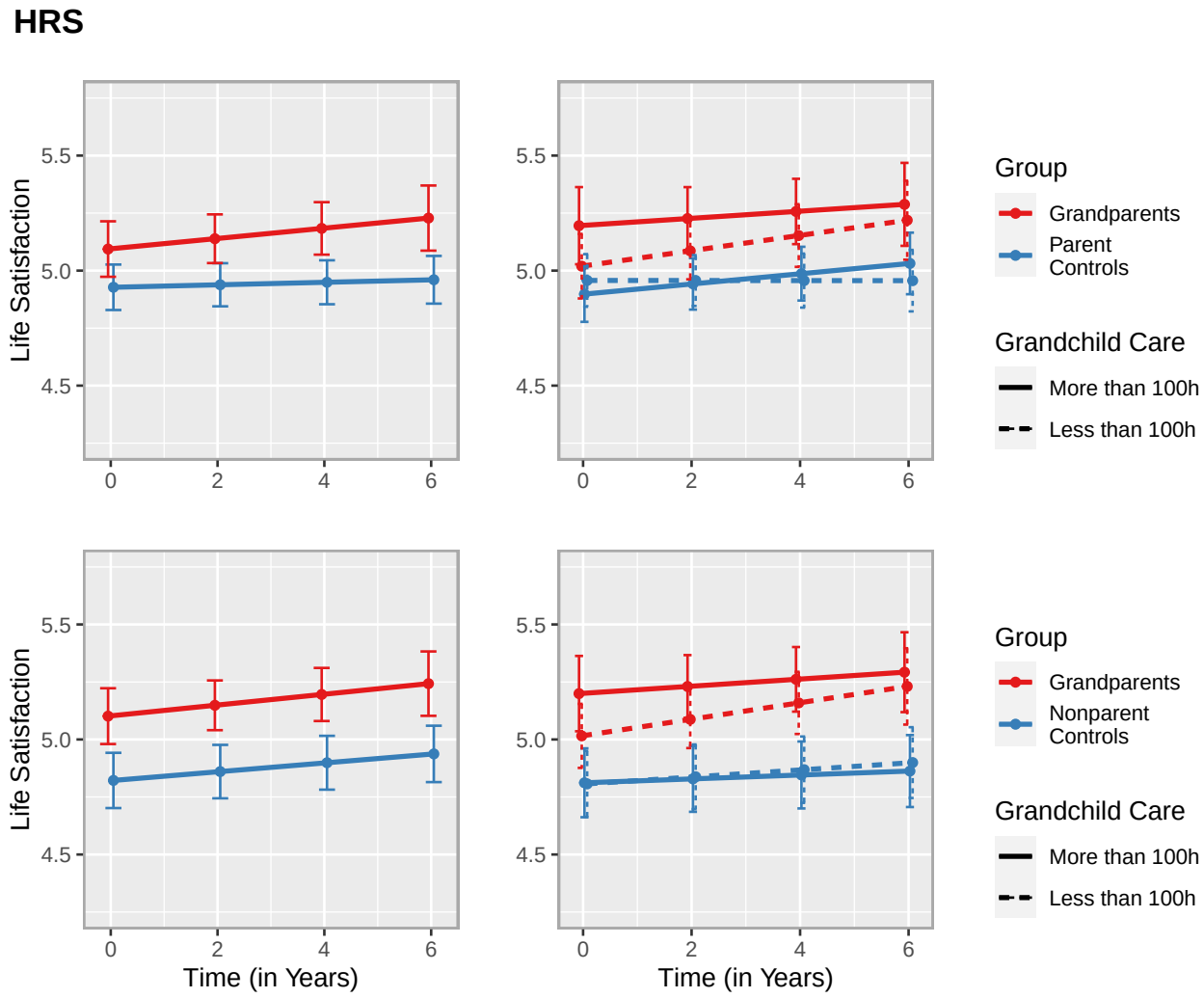

Figure S18

Change trajectories of life satisfaction based on the models of moderation by grandchild care (see Table S53). The error bars are 95% confidence intervals of the predicted values which only account for the fixed-effects portion of the model. The plots in the left column are the same as in Figure S16 (basic models) but restricted to the post-transition period for better comparability.

Complete Software and Session Information

We used R (Version 4.0.4; R Core Team, 2021) and the R-packages *car* (Version 3.0.10; Fox et al., 2020a, 2020b; Yentes & Wilhelm, 2018), *carData* (Version 3.0.4; Fox et al., 2020b), *careless* (Version 1.1.3; Yentes & Wilhelm, 2018), *citr* (Version 0.3.2; Aust, 2019), *corrplot2017* (Wei & Simko, 2017), *cowplot* (Version 1.1.0; Wilke, 2020), *dplyr* (Version 1.0.2; Wickham, François, et al., 2020), *effects* (Version 4.2.0; Fox & Weisberg, 2018; Fox, 2003; Fox & Hong, 2009), *forcats* (Version 0.5.0; Wickham, 2020a), *foreign* (Version 0.8.81; R Core Team, 2020), *ggplot2* (Version 3.3.4; Wickham, 2016), *GPArotation* (Version 2014.11.1; Bernaards & I.Jennrich, 2005), *interactions* (Version 1.1.3; Long, 2019), *jtools* (Version 2.1.1; Long, 2020), *knitr* (Version 1.30; Xie, 2015), *lme4* (Version 1.1.26; Bates et al., 2015), *lmerTest* (Version 3.1.3; Kuznetsova et al., 2017), *magick* (Version 2.6.0; Ooms, 2021), *MASS* (Version 7.3.53; Venables & Ripley, 2002), *MatchIt* (Version 4.1.0; Ho et al., 2020), *Matrix* (Version 1.3.2; Bates & Maechler, 2021), *multcomp* (Version 1.4.17; Hothorn et al., 2008), *mvtnorm* (Version 1.1.1; Genz & Bretz, 2009), *papaja* (Version 0.1.0.9997; Aust & Barth, 2020), *patchwork* (Version 1.1.0.9000; Pedersen, 2020), *png* (Version 0.1.7; Urbanek, 2013), *psych* (Version 2.0.9; Revelle, 2020), *purrr* (Version 0.3.4; Henry & Wickham, 2020), *readr* (Version 1.4.0; Wickham & Hester, 2020), *robustlmm* (Version 2.3; Koller, 2016), *scales* (Version 1.1.1; Wickham & Seidel, 2020), *stringr* (Version 1.4.0; Wickham, 2019), *survival* (Version 3.2.7; Terry M. Therneau & Patricia M. Grambsch, 2000), *TH.data* (Version 1.0.10; Hothorn, 2019), *tibble* (Version 3.1.2; Müller & Wickham, 2020), *tidyr* (Version 1.1.2; Wickham, 2020b), *tidyverse* (Version 1.3.0; Wickham, Averick, et al., 2019), and *tinylabels* (Version 0.1.0; Barth, 2020) for data wrangling, analyses, and plots.

The following is the output of R's *sessionInfo()* command, which shows information to aid analytic reproducibility of the analyses.

R version 4.0.4 (2021-02-15) Platform: x86_64-apple-darwin17.0 (64-bit) Running under: macOS Big Sur 10.16

Matrix products: default BLAS: /Library/Frameworks/R.framework/Versions/4.0/Resources/lib/libRblas.dylib LAPACK: /Library/Frameworks/R.framework/Versions/4.0/Resources/lib/libRlapack.dylib

locale: [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8

attached base packages: [1] stats graphics grDevices utils datasets methods base

other attached packages: [1] car_3.0-10 carData_3.0-4 scales_1.1.1
[4] cowplot_1.1.0 lmerTest_3.1-3 lme4_1.1-26
[7] Matrix_1.3-2 GPArotation_2014.11-1 psych_2.0.9
[10] forcats_0.5.0 stringr_1.4.0 dplyr_1.0.2
[13] purrr_0.3.4 readr_1.4.0 tidyr_1.1.2
[16] tibble_3.1.2 ggplot2_3.3.4 tidyverse_1.3.0
[19] multcomp_1.4-17 TH.data_1.0-10 MASS_7.3-53
[22] survival_3.2-7 mvtnorm_1.1-1 citr_0.3.2
[25] papaja_0.1.0.9997 tinylabels_0.1.0

loaded via a namespace (and not attached): [1] nlme_3.1-152 fs_1.5.0 lubridate_1.7.9.2
[4] httr_1.4.2 numDeriv_2016.8-1.1 tools_4.0.4
[7] backports_1.2.1 utf8_1.2.1 R6_2.5.0
[10] DBI_1.1.0 colorspace_2.0-1 withr_2.4.2
[13] tidyselect_1.1.0 mnormt_2.0.2 curl_4.3.1
[16] compiler_4.0.4 cli_2.5.0 rvest_0.3.6
[19] xml2_1.3.2 sandwich_3.0-0 bookdown_0.21
[22] digest_0.6.27 foreign_0.8-81 minqa_1.2.4
[25] rmarkdown_2.5 rio_0.5.16 base64enc_0.1-3
[28] pkgconfig_2.0.3 htmltools_0.5.0 dbplyr_1.4.4

```
[31] fastmap_1.0.1 rlang_0.4.11 readxl_1.3.1
[34] rstudioapi_0.13 shiny_1.5.0 generics_0.1.0
[37] zoo_1.8-8 jsonlite_1.7.2 zip_2.1.1
[40] magrittr_2.0.1 Rcpp_1.0.6 munsell_0.5.0
[43] fansi_0.5.0 abind_1.4-5 lifecycle_1.0.0
[46] stringi_1.5.3 yaml_2.2.1 grid_4.0.4
[49] blob_1.2.1 parallel_4.0.4 promises_1.1.1
[52] crayon_1.4.1 miniUI_0.1.1.1 lattice_0.20-41
[55] haven_2.3.1 splines_4.0.4 hms_0.5.3
[58] tmvnsim_1.0-2 knitr_1.30 pillar_1.6.1
[61] boot_1.3-26 codetools_0.2-18 reprex_0.3.0
[64] glue_1.4.2 evaluate_0.14 data.table_1.13.2
[67] modelr_0.1.8 nloptr_1.2.2.2 vctrs_0.3.8
[70] httpuv_1.5.4 cellranger_1.1.0 gtable_0.3.0
[73] assertthat_0.2.1 openxlsx_4.2.3 xfun_0.19
[76] mime_0.9 xtable_1.8-4 broom_0.7.6
[79] later_1.1.0.1 statmod_1.4.35 ellipsis_0.3.2
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