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In it Together: Relationship Transitions and Couple Concordance in Health and Well-Being

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Abstract

Events that change the family system have the potential to impact couple dynamics such as concordance, that is, partner similarity in health and well-being. This project analyzes longitudinal data (\geq two decades) from both partners of up to 3,501 German and 1,842 Australian couples to investigate how couple concordance in life satisfaction, self-rated health, mental health, and physical health might change with transitioning to parenthood and an empty nest. Results revealed couple concordance in intercepts (averaged $r = .52$), linear trajectories (averaged $r = .55$), and wave-specific fluctuations around trajectories (averaged $r = .21$). Concordance in linear trajectories was stronger after transitions (averaged $r = .81$) than before transitions (averaged $r = .43$), whereas no systematic transition-related change in concordance of wave-specific fluctuations was found. Findings emphasize that shared transitions represent windows of change capable of sending couples onto mutual upward or downward trajectories in health and well-being.

Keywords

couples, parenthood, empty nest, health, well-being

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Introduction

Romantic partners show concordant (i.e., linked) trajectories in physical and mental health and well-being over time. Critical time periods for changes in health and well-being throughout the adult lifespan are transitional periods. Transitions happen when individuals pass a turning point in their life trajectory (P. A. Cowan, 1991). As opposed to transitions that originate from a major change in one partner's life circumstances (e.g., retirement and onset of major disease), shared transitions such as getting married, becoming parents, and children moving out may have particular impact on the couple as an interconnected system. Shared transitions go along with demands on and opportunities for couple resources (e.g., emotional and financial) and necessitate adaptations in roles, responsibilities, and self-concepts, which can impact both individual and couple functioning (Brisini & Solomon, 2020). However, the field is only beginning to understand how shared transitions uniquely shape the extent of linkage that exists between couples' health and well-being. The current project utilizes longitudinal data from both partners obtained as part of two large panel data sets so as to examine changes in couples' concordance in life satisfaction and several health indicators across two major couple transitions (parenthood and empty nest).

Couple Concordance in Life Satisfaction and Health

Recent advances in dyadic health science emphasize the importance of taking a dyadic approach to studying health (Wilson et al., 2022). As outlined in the dyadic health influence model (Huelsenitz et al., 2022), couples influence each other by transmitting health beliefs, changing shared environments, modeling, and through relational behavior (e.g., providing support) and influence strategies (e.g., persuasion). Romantic partners share lifestyles and are similar in their levels of overall well-being, life satisfaction, physical health, and mental health (Jones et al., 2017; Meyler et al., 2007; J. Walker et al., 2017). Longitudinal studies demonstrate that partners exhibit similar trajectories of happiness (Hoppmann, Gerstorf, Willis, & Schaie, 2011), life

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satisfaction (Gray & Ozer, 2019), and mental health (e.g., depressive symptoms; Kouros & Cummings, 2010) over time. Furthermore, couples show interconnected long-term changes in health behaviors (e.g., Jackson et al., 2015) and physical health indicators (e.g., cardiovascular risk; Shiffman et al., 2020). This phenomenon is coined *partner concordance* and captures the degree of interconnectedness in the couple system.

Previous studies have not focused on each partner's yearly deviations from their average health and well-being trends specifically (modeled as a statistical error term). However, the extent to which partners fluctuate together in their ups and downs might reasonably have important health and well-being implications (Pauly et al., 2021): If one partner had a bad year (e.g., depressive episode) or a health change (e.g., accident resulting in inability to exercise), the extent to which their partner will exhibit a concordant change that same year has critical implications for the couple's resources (e.g., as needed to manage daily life tasks or to maintain health-promoting behaviors), in turn influencing both partners' functioning. Thus, this project extends previous research by investigating concordance of year-to-year changes as a dynamic indicator of couple interconnectedness. As relationships evolve, periods of vulnerability include relationship transitions because they can significantly change interdependent processes and affect both partners' health and well-being (Brisini & Solomon, 2020). To date, the ramifications of such transitions for partner concordance are poorly understood.

Relationship Transitions and Couples' Health and Well-being

Transitions are processes that "involve a qualitative shift in perceptions of oneself and the world, and an imbalance usually, but not always, followed by rebalance in our emotional equilibrium" (p. 15; P. A. Cowan, 1991). Within relationships, transitions involve role arrangements and readjustments, and a reorganization of the family system. The distribution of responsibilities, expectations toward the partner, and how partners interact with one another might be newly configured (Brisini & Solomon, 2020; P. A. Cowan, 1991). Here, we focus on two relationship transitions that can substantially change couple dynamics: (a) the household growing from two to three units with the (first) parenthood transition and (b) the household shrinking from three to two units with the empty nest transition.

Parenthood is often a transition that couples look forward to with optimism and positive emotion (Lawrence et al., 2007). However, it can be a time of relationship upheaval, accompanied by a decline in relationship satisfaction that takes 7 to 10 years to recover (Keizer & Schenk, 2012; Lawrence et al., 2007; Mitnick et al., 2009). Parenthood tends to go along with decreased physical and mental health (Brisini & Solomon, 2020; Saxbe et al., 2018). Health

behaviors such as sleep and physical activity are negatively impacted (Hagger & Hamilton, 2019), and postpartum depression is a common mental health concern for new mothers (O'Hara & McCabe, 2013). Parenthood-related adaptations of the family system include a renegotiation of division of labor (e.g., household chores, paid work, and child caring), agreements regarding parenting decisions (e.g., which school to pick), adjustments in identities (e.g., from wife to mother), and re-establishing family dynamics from a dyad to a triad (C. P. Cowan et al., 1985). New parents tend to perceive more discrepancy and distance between each other, report less intimacy, and spend less quality time together as a couple doing pleasurable activities than before the transition (C. P. Cowan et al., 1985; Dew & Wilcox, 2011). Increased emotional distance, less closeness, and fewer shared activities and routines (e.g., possibly because of a default toward traditional gendered division of labor) might reduce the frequency and intensity of factors that contribute to interdependence (e.g., shared daily contexts and mutual influence; Pauly et al., 2021). This could result in lower concordance in health and well-being in couples after the first child is born, as compared with before the transition. However, this assumption has not yet been tested using longitudinal panel data.

In Western contexts, there usually comes a time when grown-up children are moving out of the house, often referred to as the *empty nest transition* (Brisini & Solomon, 2020). Early research assumed that it is a difficult, potentially even traumatic, experience for parents which can be accompanied by feelings of loneliness and mental health symptoms (e.g., depression and anxiety; Infurna et al., 2020). Thus, some researchers have referred to this phenomenon as the empty nest "*syndrome*" (Mitchell & Lovegreen, 2009). Data collected from parents undergoing the empty nest transition have mostly not confirmed this dark view (but see also Gao et al., 2017). Some research has linked an empty nest with better well-being and self-rated health (sometimes called the "second honeymoon"; Tracy et al., 2022; White & Edwards, 1990) while other longitudinal studies have not found significant changes in life satisfaction or well-being (Gorchoff et al., 2008; Wernli & Zella, 2018). With respect to relationship dynamics, marital satisfaction tends to increase after children leave the house and couples tend to report greater closeness (Bouchard, 2014; Tracy et al., 2022). It has been hypothesized that such increased closeness might, among other reasons, be driven by a reduction in daily parental responsibilities, reduced opportunities for conflict, and increased enjoyment of time with the partner (Gorchoff et al., 2008; Orbach et al., 1996). To our knowledge, it has not been investigated how couples' linkage in health and well-being might change with the experience of an empty nest. We expect that more opportunities for interdependence (e.g., shared activities and shared daily contexts) could go along with increased concordance in health and well-being between partners after, as compared with before, the empty

nest transition. A better understanding of transition-related changes to couple concordance will help gain insight into windows of vulnerability and opportunity when it comes to intimate partner relationships and health (Kiecolt-Glaser & Wilson, 2017).

This Study

This study takes a unique dyadic approach to investigate how relationship transitions do not only impact each individual partner's functioning separately, but also the extent of concordance that exists between partners. This is important because concordance can denote both a vulnerability factor and a resilience factor given that any transition-related downturns as well as transition-related improvements in health and well-being are often shared between partners. Extending past research, we not only investigate couple concordance in linear trajectories, but also concordance in yearly fluctuations around linear trajectories. A better understanding of how concordance changes as couples undergo transitions could be used to optimize how partners age together, in the context of the couple relationship. We utilize existing longitudinal data from two large panel surveys that include sizable couple subsamples: the German Socio-Economic Panel (SOEP: Study 1) and the Household, Income, and Labour Dynamics in Australia (HILDA: Study 2). Hypotheses were preregistered at <https://osf.io/u8ntv>. We expected that baseline levels for life satisfaction and several health indicators would be correlated between partners. We anticipated that couples would exhibit correlated patterns of change and variability in life satisfaction and health over time (H1). Specifically, we investigated concordance in initial levels (intercepts), linear trajectories (slopes), and wave-specific deviations from the linear trajectory (wave-specific residuals). We expected couple concordance in life satisfaction and health to be decreased after transitioning to parenthood, as compared with pre-transition levels (H2). We expected couple concordance in life satisfaction and health to be increased after transitioning to an empty nest, as compared with pre-transition levels (H3).

Methods

This project uses data from two large panel data sets (SOEP and HILDA). We briefly describe samples and procedures relevant to this study below. For more details, we refer the reader to Wagner et al. (2007) and Richter et al. (2017) for SOEP and Wooden and Watson (2007) for HILDA.

Study 1: SOEP

Participants and Procedure. The German SOEP began data collection in 1984 with a nationally representative sample of approximately 11,000 West German persons (4,528 households). Households are surveyed annually via face-to-face

interviews and self-administered questionnaires, and several top-up samples including East German households have been added since inception of the study (around 30,000 respondents in 2019). Survey topics span from socio-demographic information (employment, occupation, earnings, etc.) to health and well-being indicators. We use data from all couples aged >18 years with available life satisfaction and health data for at least 2 years across the first 36 waves (1984–2019; data release 2021), due to the longitudinal nature of our research questions. This resulted in a sample of 22,194 couples aged 18 to 94 years ($M = 43.16$, $SD = 14.38$), out of which 130 were same-sex couples. In their first wave of data collection, couples reported an average of 11.68 years of education ($SD = 2.76$) and an average household income of 34,032.43€/year ($SD = 22,593.75€$). Three quarters of participants were born in Germany (74%), and about half were employed full-time (47%), 14% in regular or irregular part-time employment, 8% retired, and 31% not employed. Participants completed an average of 9.00 waves (range: 2–36, $SD = 7.59$). The SOEP was ethics approved by the German Council of Science and Humanities (Wissenschaftsrat), and all participants gave written informed consent to participate in the survey.

For our research questions with respect to relationship transitions, we looked at the subsample of couples who transitioned from having no child in the household to having at least one child in the household (parenthood transition: research question H2, $n = 2,069$ couples) and the subsample of couples who transitioned from having at least one child in the household to having no child in the household (empty nest transition: research question H3, $n = 3,501$ couples). If participants experienced the same transition multiple times, we only considered the first transition. To be able to estimate the change in our study outcomes with respect to the transition, we removed couples from the data set who did not provide data in at least the years prior to, concurrent with, and after the transition (i.e., three consecutive annual data; parenthood: $n = 365$ couples, 18%; empty nest: $n = 606$ couples, 17%; cf. Weber & Hülür, 2021) resulting in final sample sizes of 1,704 and 2,895 couples for the parenthood and empty nest transition, respectively (see Table 1 for descriptives). The average year of transition was the year 2001 (range: 1985–2018) for the transition to parenthood and the year 2002 (range: 1985–2018) for the transition to an empty nest.

Measures

Life Satisfaction. For each survey year, participants reported how satisfied they were with their life on a 11-point Likert-type scale from 0 “completely dissatisfied” to 10 “completely satisfied” (first wave: $M = 7.65$, $SD = 1.75$).

Health. Since 1992, health has been assessed yearly (except for 1993) using a one-item measure for self-rated health which asks participants to rate their current health on a 5-point Likert-type scale from 1 “very good” to 5 “poor”

Table 1. Sample Descriptives at First Wave ($n = 1,704$ – $22,194$ Couples for Study 1, and $n = 972$ – $6,713$ Couples for Study 2).

Variable	Study 1 full sample ($n = 22,194$ couples) Mean (SD)	Study 1 parent transition sample ($n = 1,704$ couples) Mean (SD)	Study 1 empty nest transition sample ($n = 2,895$ couples) Mean (SD)	Study 2 full sample ($n = 6,713$ couples) Mean (SD)	Study 2 parent transition sample ($n = 1,608$ couples) Mean (SD)	Study 2 empty nest transition sample ($n = 972$ couples) Mean (SD)
Age	43.16 ^a (14.38)	29.03 ^a (8.03)	40.52 ^a (9.02)	41.67 ^a (15.96)	35.55 ^a (13.97)	49.44 ^a (9.71)
Years of education	11.68 ^a (2.76)	12.03 ^a (2.75)	11.57 ^a (2.68)	12.35 ^a (2.59)	12.79 ^a (2.42)	12.08 ^a (2.54)
Household income	34,032.43 (22,593.75)	28,382.13 (26,065.96)	31,041.49 (23,860.71)	72,721.65 (49,554.44)	75,936.82 (42,218.48)	71,742.06 (46,795.06)
Life satisfaction	7.56 ^a (1.75)	7.66 ^a (1.64)	7.44 ^a (1.79)	8.19 ^a (1.40)	8.21 ^a (1.26)	8.15 ^a (1.45)
Self-rated health	2.40 ^a (0.97)	2.13 ^a (0.86)	2.43 ^a (0.92)	2.46 ^a (0.95)	2.31 ^a (0.88)	2.50 ^a (0.92)
Mental health	50.90 (9.60)	50.00 (9.13)	49.84 (9.73)	47.93 (13.42)	47.42 (14.08)	48.83 (13.14)
Physical health	50.05 (9.84)	53.34 (8.07)	49.11 (9.37)	46.87 (12.85)	47.58 (13.06)	46.59 (12.29)

Note. *SD* = standard deviation. Household income represents the combined income of household members after taxes and government transfers in Euros for Study 1 and in Australian Dollars for Study 2. Life satisfaction is rated from 0 (completely/totally dissatisfied) to 10 (completely/totally satisfied). Self-rated health is rated from 1 (very good/excellent) to 5 (poor). Mental and physical health are summary scale scores from the SF-12v2 for Study 1 and the SF-36 for Study 2; higher scores indicate better mental and physical health.

^aMeans significantly differ between Study 1 and Study 2. Household income, mental health, and physical health were not tested for mean differences because they were on different scales.

(first wave: $M = 2.40$, $SD = 0.97$). In addition, after 2002, participants completed the SF-12v2 (Andersen et al., 2007) every 2 years, which uses six items each to measure mental health (first wave: $M = 50.90$, $SD = 9.60$) and physical health (first wave: $M = 50.05$, $SD = 9.84$). Raw values were normed at the 2004 full SOEP sample ($M = 50$, $SD = 10$). Higher scores represent better mental and physical health, respectively.

Study 2: HILDA

Participants and Procedure. The HILDA is a nationally representative study which commenced in 2001. It is funded by the Australian Government (Department of Social Services) and coordinated by the Melbourne Institute: Applied Economic and Social Research at the University of Melbourne. In its first wave, HILDA surveyed approximately 7,600 households, and 2,150 households were added as a top-up sample in 2011. Information on a range of topics including employment, earnings, expenditure, health, and well-being is collected from all household members aged more than 15 years via face-to-face interviews and self-report questionnaires. We include data from all couples aged >18 years with available life satisfaction and health data for at least 2 years across the first 19 waves (2001–2019; data release 2021). This resulted in a sample of 6,713 couples aged 18 to 96 ($M = 41.67$, $SD = 15.96$), out of which 168 were same-sex couples. In their first wave of data collection, couples reported an average of 12.35 years of education ($SD = 2.59$) and an average household income of 72,721.65 Australian dollar (AUD)/year ($SD = 49,554.44$ AUD). Three quarters of participants were born in Australia (75%), and a little less than half were employed full-time (45%), 19% in part-time

employment, 22% retired, and 14% not employed. Participants completed an average of 10.98 waves (range: 2–19, $SD = 6.00$). Ethical approval for HILDA was granted by the Human Research Ethics Committee of the University of Melbourne, and all participants gave written informed consent.

With respect to relationship transitions, $n = 1,842$ couples transitioned from having no child in the household to having at least one child in the household (parenthood transition: research question H2) and $n = 1,128$ couples transitioned from having at least one child in the household to having no child in the household (empty nest transition: research question H3). Removing couples from the data set that did not provide data in at least the years prior to, concurrent with, and after the transition (three waves; parenthood: $n = 234$ couples, 13%; empty nest: $n = 156$ couples, 14%) resulted in final sample sizes of $n = 1,608$ and $n = 972$ couples for the parenthood and empty nest transition, respectively (see Table 1 for descriptives). The average year of transition was the year 2011 (range: 2002–2018) for both the transition to parenthood and an empty nest.

Measures

Life Satisfaction. Annually, participants were asked how satisfied they were with their life on a 11-point Likert-type scale, ranging from 0 “totally dissatisfied” to 10 “totally satisfied” (first wave: $M = 8.19$, $SD = 1.40$).

Health. At each wave, participants self-rated their current health (one-item measure) on a 5-point Likert-type scale from 1 “excellent” to 5 “poor” (first wave: $M = 2.46$, $SD = 0.95$). In addition, participants completed the SF-36 (Sanson-Fisher et al., 1998) annually, which uses 35 items to measure

bodily pain, general health, physical functioning, role limitations due to physical health problems, mental health, role limitations due to emotional problems, social functioning, and vitality (the thirty-sixth item measures health change). Mental health (first wave: $M = 47.93$, $SD = 13.42$) and physical health (first wave: $M = 46.87$, $SD = 12.85$) summary scales were calculated according to standard scoring procedures (see Ware et al., 1995). This involved standardizing each subscale on U.S. population norms, calculating weighted sums for the mental and physical health scales, and transforming these sum scores to t -scores ($M = 50$, $SD = 10$; in U.S. normed population units; also, see Gerstorf et al., 2013). Higher scores represent better mental and physical health, respectively.

Covariates. We consider the following variables as covariates in sensitivity analyses, which have been associated with couples' health and well-being throughout transitions: age, sex, number of children, relationship duration, education, and household income (Doss & Rhoades, 2017; Mitchell & Lovegreen, 2009).

Statistical Analysis

Data were analyzed in Mplus version 8 (Muthén & Muthén, 2019) using multilevel latent growth curve models for dyads (see the Online Supplemental Materials for more details). Missing data were handled using full information maximum likelihood. To be inclusive of same-sex couples, we did not use sex as a distinguishing variable, as is common in couple research. Instead, we randomly allocated roles of "partner 1" and "partner 2" for each couple and constrained parameters to be equal for partners in the models (see Olsen & Kenny, 2006). For Research Question 1, outcomes were modeled as a function of time in years since the first wave of participation. Separate models were fit for life satisfaction, self-rated health, mental health, and physical health. In line with models by Lewis and Yoneda (2021), we estimated three covariance values for partner similarity in intercepts (correlated outcome at first measurement wave), slopes (concordance in linear change over time), and wave-specific residuals (concordance in wave-specific fluctuations around the linear change).

For Research Questions 2 and 3 regarding concordance changes induced by transitions, we focused on the 6 years pre-transition and post-transition, so that three data points were available for biannual measures for each phase.¹ We restructured the data file so that each outcome variable was represented by two separate variables within the same model, denoting observations before and after the transition (cf. Hamaker et al., 2023). To illustrate, the *life satisfaction pre* variable would include measurements of life satisfaction before the transition and contain missing values for all years following the transition. Likewise, the *life satisfaction post* variable would include measurements of life satisfaction in

the years of and after the transition and contain missing values for all years before the transition. This was important because it allowed to estimate separate error terms pre-transition and post-transition. Furthermore, we calculated two time variables to be able to model the slopes for the time before, as compared with after the transition. The variable *years pre* contained negative values in all years before the transition (-5 to -1 in observations T_{-6} through T_{-2} with T_0 being the year of transition) and was set to 0 starting with the year before the transition (T_{-1} through T_5). The variable *years post* contained positive values in all years after the transition (1 through 5 in observations T_1 through T_5) and was set to 0 in all years before the transition. The *years pre* and *years post* variables were then regressed on the *outcome pre* and *outcome post* variables to estimate a pre-transition and post-transition slope for each partner. Models estimated covariances (i.e., concordance) in pre-transition slopes, post-transition slopes, pre-transition wave-specific residuals, and post-transition wave-specific residuals between partners. Separate models were fit for changes in couple concordance in life satisfaction, self-rated health, mental health, and physical health for the parenthood and empty nest transitions. For an estimation of effect sizes, covariance values in all models were transformed to Pearson correlation coefficients. We inspected differences in the Akaike information criterion (AIC) between models constraining concordance in slopes or wave-specific residuals to be equal or freely estimated, to examine whether concordance might differ pre-transition, as compared with post-transition (with $\Delta_{AIC} \geq 4$ indicating support for either model; Burnham & Anderson, 2002).

Statistical Power

We post hoc calculated statistical power to detect associations of interest using Monte Carlo simulations ($n = 1,000$ simulations). Assuming small standardized effect sizes (0.10) and a sample size of at least 6,713 individuals, we had >99.9% power to detect concordance in intercepts, slopes, and wave-specific residuals between partners for Research Question 1. For Research Questions 2 and 3, the most conservative power calculations ($n = 972$ individuals, small standardized effect sizes) estimated a power of 91.8% to 93.1% to detect concordance in slopes pre-transition/post-transition between partners and a power of >99.9% to detect concordance in wave-specific residuals pre-transition/post-transition between partners.

Transparency and Openness

This project's hypotheses and analytical plan (secondary analysis of existing data) were preregistered (<https://osf.io/u8ntv/>). Analysis scripts and full model results are available at <https://osf.io/nc3df/>. Data are from multidisciplinary, longitudinal studies that are not under our direct control and available for free for researchers on request (Study 1: <https://>

www.diw.de/en/diw_01.c.601584.en/data_access.html; Study 2: <https://melbourneinstitute.unimelb.edu.au/hilda/for-data-users>).

Results

Descriptive statistics of the full Study 1 and 2 samples, and the transition-related subsamples can be found in Table 1. The Study 1 full sample was older, whereas the transition samples were younger as compared with Study 2. Study 1 participants reported fewer years of education, lower life satisfaction, and better self-rated health than Study 2 participants. Intercorrelations of central study variables can be found in the online Supplemental Material (Supplemental Tables 1 and 2).

Couple Concordance in Life Satisfaction and Health

We first ran models including all available data for Study 1 and Study 2 (H1). Please see the Open Science Framework (OSF) page for full model results (<https://osf.io/nc3df/>). In line with our hypothesis, couples were concordant in their *intercepts* (i.e., levels at the first wave) for life satisfaction (Study 1: $r = .72, p < .001$; Study 2: $r = .52, p < .001$), self-rated health (Study 1: $r = .45, p < .001$; Study 2: $r = .46, p < .001$), mental health (Study 1: $r = .48, p < .001$; Study 2: $r = .50, p < .001$), and physical health (Study 1: $r = .49, p < .001$; Study 2: $r = .51, p < .001$). They were also concordant in their *slopes* (i.e., long-term changes) of life satisfaction (Study 1: $r = .76, p < .001$; Study 2: $r = .59, p < .001$), self-rated health (Study 1: $r = .44, p < .001$; Study 2: $r = .34, p < .001$), mental health (Study 1: $r = .77, p < .001$; Study 2: $r = .49, p < .001$), and physical health (Study 1: $r = .53, p < .001$; Study 2: $r = .51, p < .001$) over time. Finally, partners were concordant in wave-specific deviations from that average trend for life satisfaction (Study 1: $r = .33, p < .001$; Study 2: $r = .15, p < .001$), self-rated health (Study 1: $r = .11, p < .001$; Study 2: $r = .08, p < .001$), mental health (Study 1: $r = .24, p < .001$; Study 2: $r = .36, p < .001$), and physical health (Study 1: $r = .10, p < .001$; Study 2: $r = .31, p < .001$).

To summarize, across both studies, couples were concordant in their initial levels, long-term trajectories, and wave-specific deviations from long-term trajectories in all measured outcomes (i.e., life satisfaction, self-rated health, mental health, and physical health).

Relationship Transitions and Couples' Health and Well-Being

Next, we examined Research Questions 2 and 3, which concerned transition-related changes. We had hypothesized that concordance might decrease with the transition to parenthood and increase with the transition to an empty nest. Results can be found in Supplemental Tables 3 and 4 in the Online

Supplement and are illustrated in Figures 1 to 3. Pre-transition and post-transition concordance values are reported in Supplemental Table 5 in the online supplement.

Couple Concordance and the Parenthood Transition. In both samples, **life satisfaction** showed increasing levels before the transition to parenthood but a declining trend after the transition. There was a significant drop in life satisfaction in the year of parenthood. Couples showed significant concordance in their pre-transition and post-transition slopes and pre-transition and post-transition wave-specific residuals in both studies. Model fit information indicated that concordance in slopes was higher post-transition, as compared with pre-transition in both studies (Study 1: $r_{pre} = .62, r_{post} = .98, \Delta_{AIC} = 12.5$; Study 2: $r_{pre} = .56, r_{post} = .93, \Delta_{AIC} = 5.1$).

Self-rated health was declining over time in both studies, before and after the parenthood transition. There was a significant drop in self-rated health in the year of parenthood. Pre-transition slope concordance was significant in Study 1 but not in Study 2. Couples showed significant concordance in their post-transition slopes and pre-transition and post-transition wave-specific residuals in both studies. In Study 1, there was evidence for concordance in slopes being higher post-transition, as compared with pre-transition ($r_{pre} = .48, r_{post} = .92, \Delta_{AIC} = 4.5$).

In both studies, **mental health** showed increasing levels before the transition to parenthood and stable levels thereafter. There was a significant drop in mental health in the year of parenthood in Study 2 but not in Study 1. Couples showed significant concordance in their pre-transition slopes only in Study 2 but not in Study 1. Post-transition slopes and pre-transition and post-transition wave-specific residuals were significantly correlated in both studies. Model fit information indicated that concordance in slopes was higher post-transition, as compared with pre-transition in Study 2 ($r_{pre} = .40, r_{post} = .79, \Delta_{AIC} = 10.2$).

Physical health remained stable in Study 2 and decreased over time in Study 1. There was a significant drop in levels of physical health in the year of parenthood in Study 2 but not in Study 1. Couples showed significant concordance in their pre-transition slopes in Study 2 but not in Study 1. Post-transition slopes and pre-transition and post-transition wave-specific residuals were significantly correlated in both studies. In Study 2, there was evidence for concordance in slopes being higher post-transition, as compared with pre-transition ($r_{pre} = .39, r_{post} = .99, \Delta_{AIC} = 19.5$).

In sum, over time, self-rated health (both studies) and physical health (Study 1) declined. Life satisfaction and mental health showed increasing levels before parenthood and stable or decreasing levels after parenthood. When comparing levels in the year directly before and after the transition to parenthood, new parents showed a significant drop in life satisfaction and self-rated health in both studies, and a drop in mental and physical health in Study 2. With respect to slope concordance, there was some indication that slopes

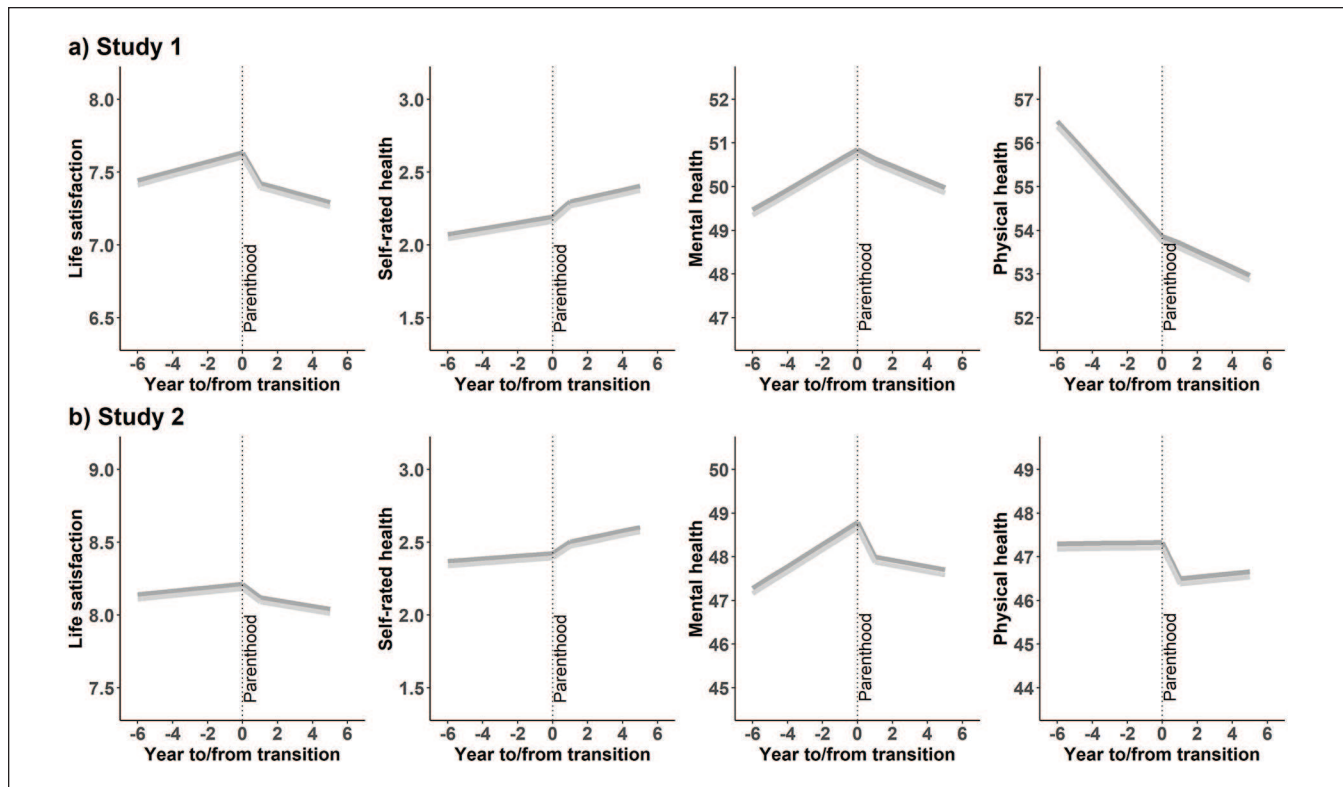


Figure 1. Model-implied changes in health and well-being with the parenthood transition.

Note. The figure shows sample-average estimated changes in life satisfaction, self-rated health, mental health, and physical health in couples in Study 1 (panel a) and Study 2 (panel b) before and after the parenthood transition. Because partners were treated as indistinguishable, average change estimates are the same for both partners (depicted as the light and dark gray line).

for self-rated health, physical health, and mental health were more likely to be significantly correlated post-transition, as compared with pre-transition. Model fit indicated that concordance in slopes was higher post-transition, as compared with pre-transition, for life satisfaction (both studies), self-rated health (Study 1), and mental and physical health (Study 2). There were significant correlations of wave-to-wave deviations from the linear trend (as indicated by the wave-specific residuals) between partners in all outcomes, both pre-transition and post-transition. Model fit parameters did not indicate that concordance in wave-specific residuals changed with the transition.

Couple Concordance and the Empty Nest Transition. In Study 1, **life satisfaction** showed decreasing levels over time before the empty nest transition and was stable thereafter. In Study 2, life satisfaction was stable over time. There was a significant drop in life satisfaction from the assessment in the year before the empty nest transition to the assessment in the year immediately following the transition in Study 1 but not in Study 2. Couples showed significant concordance in their pre-transition and post-transition slopes and pre-transition and post-transition wave-specific residuals in both studies. Model fit information indicated that concordance in slopes

was higher post-transition, as compared with pre-transition in both studies (Study 1: $r_{\text{pre}} = .78$, $r_{\text{post}} = .98$, $\Delta_{\text{AIC}} = 7.5$; Study 2: $r_{\text{pre}} = .45$, $r_{\text{post}} = .89$, $\Delta_{\text{AIC}} = 4.2$).

Self-rated health was declining over time, both before and after the transition to the empty nest in both studies. There was no significant change in self-rated health from the assessment in the year before the empty nest to the assessment in the year after the empty nest. Couples showed no significant concordance in their pre-transition slopes. Concordance in post-transition slopes was significant for both studies. Couples showed significant concordance in their pre-transition wave-specific residuals (Study 1) and post-transition wave-specific residuals (both studies). Model fit information indicated that concordance in slopes was higher post-transition, as compared with pre-transition in Study 1 ($r_{\text{pre}} = .19$, $r_{\text{post}} = .62$, $\Delta_{\text{AIC}} = 6.5$).

In both studies, **mental health** showed generally stable levels over time, pre-transition and post-transition. There was a drop in mental health in the year of the empty nest transition in Study 2 but not in Study 1. Couples showed significant concordance in their post-transition slopes and pre-transition and post-transition wave-specific residuals in both studies. Concordance in pre-transition slopes was only significant in Study 2. Model fit parameters did not indicate that

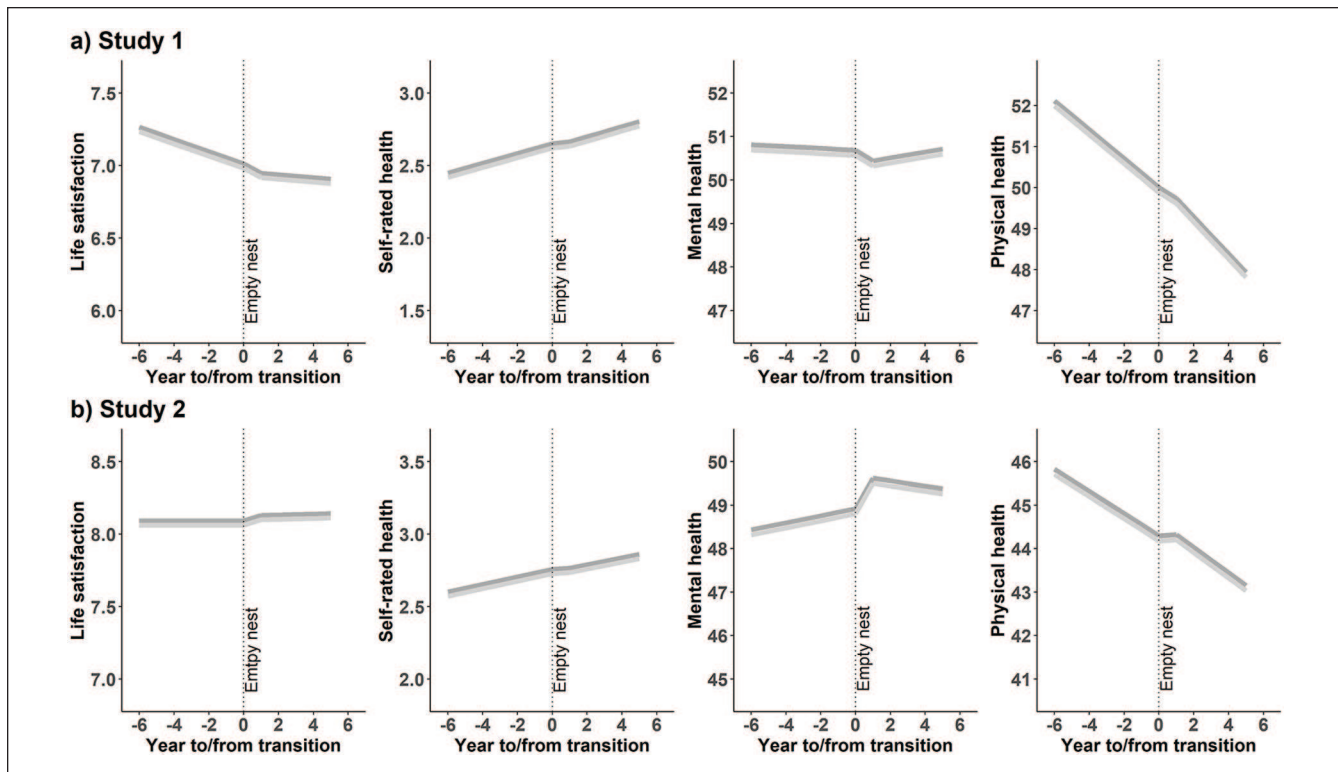


Figure 2. Model-implied changes in health and well-being with the empty nest transition.

Note. The figure shows sample-average estimated changes in life satisfaction, self-rated health, mental health, and physical health in couples in Study 1 (panel a) and Study 2 (panel b) before and after the empty nest transition. Because partners were treated as indistinguishable, average change estimates are the same for both partners (depicted as the light and dark gray line).

concordance in slopes or wave-specific residuals changed with the transition.

Physical health declined over time, both before and after the transition to an empty nest in both studies. There was no significant change in physical health in the year of the empty nest transition. Couples showed no significant concordance in their pre-transition slopes in Study 1 but they did in Study 2. Post-transition slopes and pre-transition and post-transition wave-specific residuals were significantly correlated in both studies. Model fit information indicated that concordance in wave-specific residuals was higher pre-transition, as compared with post-transition in Study 2 ($r_{pre} = .28$, $r_{post} = .20$, $\Delta_{AIC} = 10.9$)

In sum, self-rated health and physical health showed decreasing levels over time, whereas mental health remained stable. In Study 1, life satisfaction was decreasing before the empty nest transition and was stable thereafter. In Study 2, life satisfaction was stable over time. When comparing levels in the year directly before and after the transition, empty nesters showed a significant drop in life satisfaction in Study 1. Mental health was higher, rather than lower, in the year following the empty nest transition in the HILDA sample. Self-rated health and physical health did not change. With respect to slope concordance, there was some indication that slopes for self-rated health, mental health, and physical

health were more likely to be significantly correlated post-transition, as compared with pre-transition. Model fit parameters indicated that slope concordance was higher post-transition, as compared with pre-transition, for life satisfaction (both studies) and self-rated health (Study 1). Wave-specific deviations from the linear change were significantly correlated between partners in all outcomes, both pre-transition and post-transition, except for pre-transition wave-specific residuals for self-rated health in Study 2. Model fit parameters indicated that concordance in wave-specific residuals largely did not differ pre-transition, as compared with post-transition with one exception: In Study 2, concordance in wave-specific residuals for physical health was higher pre-transition, as compared with post-transition.

Sensitivity Analyses

The overall pattern of findings did not change when same-sex couples were excluded from the sample and when pertinent covariates (age, sex, number of children, marital duration, education, and household income) were included in the model, with a few exceptions. For the parenthood transition, concordance in post-transition slopes for mental and physical health and concordance in post-transition wave-specific residuals for physical health were not significant

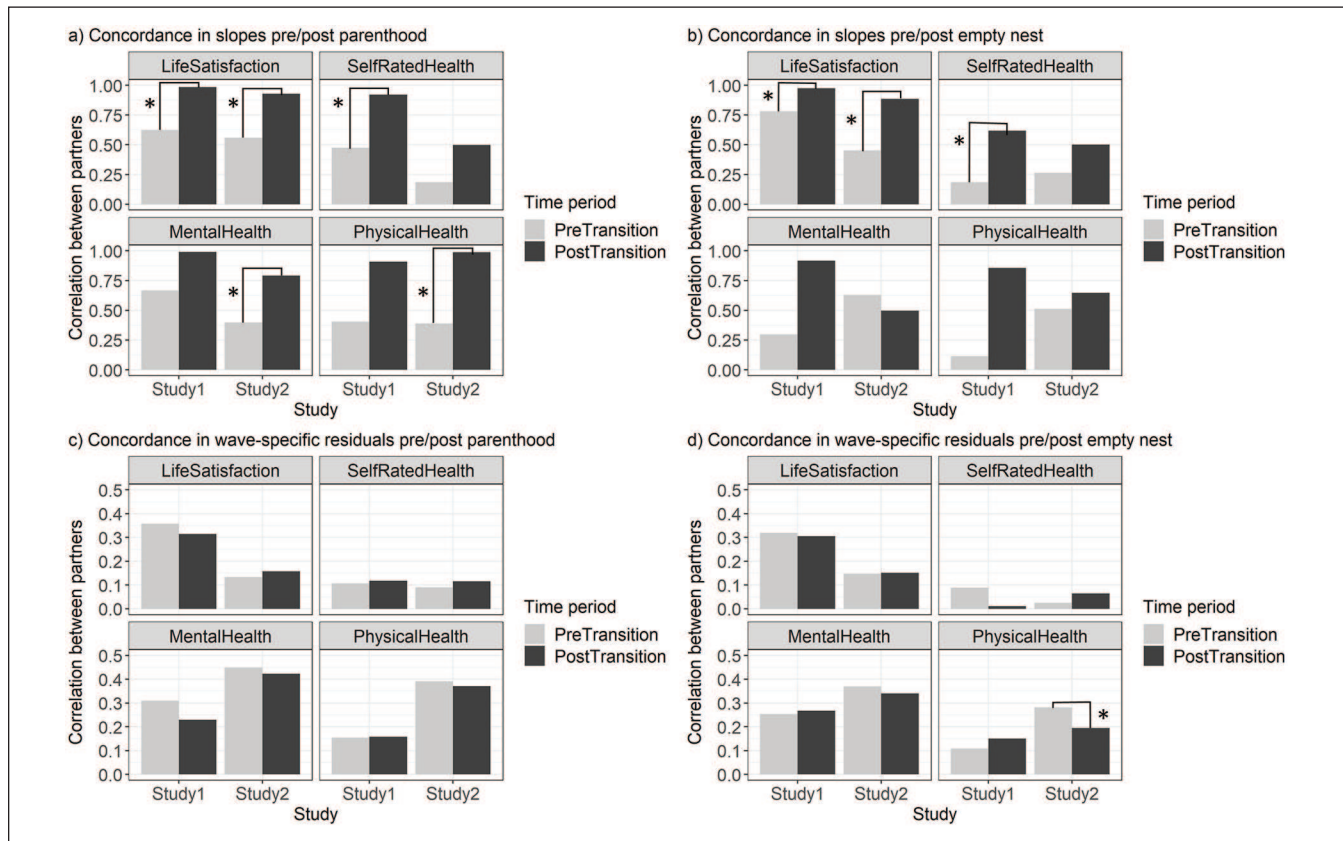


Figure 3. Couple concordance before and after the parenthood and empty nest transition.

Note. The figure shows differences in couple concordance in slopes (linear average trends) and wave-specific residuals (wave-specific deviations from the linear average trend) before and after shared relationship transitions (parenthood, empty nest) in Study 1 and Study 2 samples. The asterisk denotes a significant difference in model fit ($\Delta_{AIC} > 4$) between models that constrain concordance to be equal pre-transition/post-transition and models that freely estimate the respective parameters, indicating that concordance between partners in slopes or wave-specific residuals significantly differed before versus after the transition.

(previously significant) in Study 1 with the inclusion of covariates. For the empty nest transition, concordance in post-transition slopes for mental health and concordance in pre-transition wave-specific residuals for physical health were not significant (previously significant) whereas concordance in pre-transition slopes for self-rated health and physical health was now significant (previously not significant) in Study 1 with the inclusion of covariates.

Discussion

Couples' developmental trajectories are linked. Using national data from couples in Germany and Australia for up to 35 and 19 years, respectively, this study provides further evidence that couples exhibit linked patterns (i.e., concordance) of change and variability in well-being and mental and physical health over time. Extending past research, we investigated how couple concordance might shift with relationship transitions, namely when children enter the household (parenthood) and when they leave (empty nest). Overall, we found evidence that average trajectories (as indicated by slopes) in well-being and health were more likely to be significantly correlated, or more

strongly correlated, following transitions. Correlations in year-to-year deviations from the overall trajectories (as indicated by wave-specific residuals) mostly did not change following transitions. In the following, we tap into the social, developmental, and relationship literatures to discuss our findings, point to future directions, and mention relevant strengths and limitations of our work.

Couple Concordance in Life Satisfaction and Health

As hypothesized, couples showed similar initial levels and long-term changes (i.e., correlated slopes) in life satisfaction and several health indicators (self-rated health, mental health, physical health). Concordance in initial levels was high, ranging from $r = .45$ to $r = .72$, while concordance in slopes was moderate to high, ranging from $r = .34$ to $r = .76$. This is in line with prior longitudinal research demonstrating linkages in mental and physical functioning between partners (Bourassa et al., 2015; Hoppmann, Gerstorf, & Hibbert, 2011; Hoppmann, Gerstorf, Willis, & Schaie, 2011; Shiffman et al., 2020). Extending past research, we demonstrate that

couples were concordant in their year-to-year fluctuations around long-term trends in life satisfaction and health (i.e., they exhibited small to moderate correlations in wave-specific residuals, ranging from $r = .08$ to $r = .36$). This implies that if one partner experienced a particularly good/bad year—for example, if their physical health was better/worse than what would have been expected given their overall decline in health over time—their partner would also likely experience better/worse physical health that same year, as compared with what would have been expected given their long-term health trend.

Prior literature has put forth multiple reasons for couples' concordance in health and well-being, including shared environment, mutual influence, and shared (health) behaviors (Ask et al., 2013; Meyler et al., 2007; Orth et al., 2018). Couple concordance has implications for both couple and individual functioning. Relationship closeness might contribute to health and well-being concordance through contagion processes, for the good and bad (Kiecolt-Glaser & Wilson, 2017; R. B. Walker & Luszcz, 2009). At the same time, concordant psychological and physiological experiences could contribute to more closeness between partners (Pauly et al., 2021). Shared health-compromising or health-promoting behaviors have been linked with greater relationship satisfaction and closeness (Pauly et al., 2023; Wilson & Novak, 2022). Concordant health challenges could facilitate collaborative coping in couples, whereas discordant chronic conditions have been linked with adverse psychological well-being and lower health-related perceptions of control (Polenick et al., 2021, 2022). Finally, high concordance in year-to-year health and well-being fluctuations in couples might allow carryover effects of a positive health behavior change or an intervention delivered only to one partner (Gorin et al., 2008; Jackson et al., 2015). Meanwhile, it could also contribute to spillover effects of adverse physical or mental health events (Kiecolt-Glaser & Wilson, 2017; Kouros & Cummings, 2010). Future research should examine the conditions under which concordance can be adaptive or maladaptive for individual and couple outcomes. Specifically, we need to better understand how to leverage couples' dynamic interconnectedness to support both partners' health and well-being over the long term.

Relationship Transitions and Couples' Health and Well-Being

Parenthood brings about an array of demands on time allocation, emotional and cognitive resources, finances, and the relationship between partners (Saxbe et al., 2018). In line with prior research, both studies provided evidence that the parenthood transition was associated with a short-term drop in health and well-being (Brisini & Solomon, 2020; Saxbe et al., 2018). German and Australian participants reported lower levels of life satisfaction and self-rated health in the year following the parenthood transition, as compared with

the year prior to becoming parents. Australian participants also reported a drop in mental and physical health. Findings dovetail with prior studies that have shown an increased risk of depressive symptoms and a drop in happiness that is comparable to other life events such as unemployment (Margolis & Myrskylä, 2015; Paulson & Bazemore, 2010). Furthermore, prior research has linked parenthood with weight gain and detrimental changes in health behaviors, including poor diet, decreased physical activity levels, and impaired sleep (Hagger & Hamilton, 2019; Saxbe et al., 2018). From a public health perspective, this highlights the importance of policies that help mitigate stress in new parents. In Germany, parents have received 8 weeks of paid maternity leave and 36 months of unpaid job-protected leave since 1992; a new law in 2007 introduced income-dependent paid leave for up to 12 to 14 months (Schober, 2014). In Australia, parents have been entitled to 1 year of unpaid job-protected leave since 1996, and an 18-week parental leave pay at minimum wage was introduced in 2011 (Newsome, 2021). Such policies can help protect parents' health and well-being in the long term (Heymann et al., 2017).

Contrary to our expectations, couples were more likely to be concordant in average changes over time (i.e., slopes)—or concordance was stronger—for life satisfaction, self-rated health, physical health, and mental health after they had become parents (pre-transition: averaged $r = .46$; post-transition: averaged $r = .88$). Having a child could create a shared context that binds parents' energy and time to the extent that they become more closely aligned and that their actions, emotions, and cognitions are even more intertwined than before childbirth. In addition, partners might experience a similar negative impact of parenthood on health and well-being, creating concordance in a potentially negative way (i.e., concurrent decreases in the measured outcomes over time). Shared declines in mental and physical health in partners after childbirth could, in turn, limit couples' ability to cope with parenthood-related demands. Thus, future research needs to test whether some level of discordance could be adaptive for couple functioning throughout this transition.

Concordance in wave-specific residuals did not significantly change with the parenthood transition. The level of time resolution, for example, year-to-year, month-to-month, or day-to-day changes, could influence the extent and direction to which couples are interconnected in their fluctuations in health and well-being (Pauly et al., 2021). Future studies combining different time scales such as measurement-burst studies (Sliwinski, 2008) may help better explain how interconnected ups and downs change with the parenthood transition. Furthermore, it will be important to account for parental characteristics (e.g., self-views) and characteristics of the child (e.g., temperament) which could influence how the parenthood transition is experienced (Doss & Rhoades, 2017).

The empty nest transition samples showed mostly stable long-term levels of life satisfaction and mental health over time, whereas self-rated health and physical health decreased.

This dovetails with findings from the aging literature, demonstrating maintained or increasing mental health in late midlife and older age despite physical decline (Happell & Koehn, 2011). Previous research on immediate health and well-being changes accompanying the empty nest transition has been mixed, with some studies showing no effects (e.g., Wernli & Zella, 2018), positive changes (e.g., Tracy et al., 2022), or negative changes (e.g., Gao et al., 2017). Our study adds further evidence to the notion that the effects of children leaving the house might be experienced differently among couples. In one study (German sample), couples reported a drop in life satisfaction in the year of the empty nest transition. In the other study (Australian sample), levels of mental health increased in the year of the transition. There are at least two differences between the samples that could explain the discrepant findings. First, the average age of transition differed between samples with Study 1 participants becoming empty nesters almost 10 years earlier in life, as compared with the Study 2 cohort. Thus, for the Study 1 cohort, the transition more likely happened at the rush hour of midlife when participants were balancing multiple duties and roles such as pursuing their career and caring for aging parents (Infurna et al., 2020). The added transition-related challenges of adjusting to the role loss of being a parent, supporting the child to launch their career, a potential relocation to a smaller home, and having to renegotiate relationship dynamics with the partner might have resulted in decreased life satisfaction in this relatively younger sample in the year following the empty nest transition.

Second, there might be historical changes at play. The Study 1 sample had an average year of transition of 2002 (with the earliest transition dating all the way back to 1985), whereas for the Study 2 sample, the average year of transition was 2011 (with the earliest transition in 2002). More recent cohorts might be better equipped to handle the empty nest transition because they generally tend to have more resources (e.g., higher education, better health, and economic prosperity) than earlier generations (Drewelies et al., 2019). Furthermore, new technology facilitates staying in touch with grown-up nonresident children, helping to ward off feelings of social isolation and loneliness (Fingerman et al., 2016). Older adults nowadays also tend to volunteer more and form and maintain more nonkin relationships (Drewelies et al., 2019). This combined with the fact that life today tends to be less socially rooted and role expectations are less strict (e.g., toward mothers; Cotter et al., 2011; Drewelies et al., 2019) might make the role adjustment easier.

In line with our hypothesis, couples were more likely to be concordant in slopes—or concordance was stronger—for life satisfaction, self-rated health, physical health, and mental health after the empty nest transition (pre-transition: averaged $r = .41$; post-transition: averaged $r = .74$). This implies that transition-related changes (e.g., a drop in life satisfaction in Study 1 and an increase in mental health in Study 2) are likely shared between partners. Many empty nesters report

feeling closer to each other and sharing more activities, which could encourage contagion processes (Tracy et al., 2022). It could also be that an empty nest is followed by a shared retirement transition in subsequent years (particularly for more recent cohorts). During retirement, partners' lives might become more similar with more equal day-to-day structure and having to jointly deal with the onset of health difficulties as partners are transitioning into old age (Moen et al., 2001; Pauly et al., 2021).

Concordance in wave-specific residuals did not change, or was even lower for physical health after as compared with before the empty nest transition in Study 2, but not in Study 1. This could be explained by national differences in country-specific retirement conditions. Germany has a comprehensive statutory health insurance system and comparatively few people work post-retirement (around 7.5%; OECD, 2022). In Australia, on the contrary, individuals more often supplement retirement income by working part-time (around 15%; OECD, 2022) and rely on private health insurance to supplement public health care (Mueller & Morgan, 2022). Having available fewer financial and health resources throughout retirement could have resulted in lower concordance in couples' health fluctuations in Study 2.

Limitations and Future Directions

The impact of relationship transitions on health and well-being might be shaped by societal expectations and norms (Elder, 1991). Thus, our results that are based on Western participants might not transfer to other cultures, particularly those with different family values (e.g., China; Gao et al., 2017). Our data set comprised mostly different-sex couples. It appears that health concordance might be stronger in same-sex couples than in different-sex couples (Holway et al., 2018). In addition, women and men might be differentially impacted by transitions (e.g., postpartum depression in mothers; O'Hara & McCabe, 2013). Future studies are needed to better understand how gender and sexuality affect transition-imposed changes in relationship processes. We did not include a comparison group that does not undergo the respective relationship transitions because such a group would be very heterogeneous (e.g., voluntary and involuntary childlessness). Thus, we cannot disentangle transition-related from age-related changes. Another limitation is the relatively large gap between measurement points (yearly, biannually). Couple data that are collected during a shorter time frame but spaced more closely (e.g., monthly for 3 years around the transition) would allow to better investigate concordance in fluctuations around overall trajectories, and to examine how long transition-imposed perturbances persist.

We used only one item to capture well-being (life satisfaction). As previous studies have shown that partners also covary in their affective states over time (e.g., Hoppmann, Gerstorf, Willis, & Schaie, 2011), future studies could extend our research by using more diverse measures of well-being.

It would also be an important extension to investigate relationship transitions and concordance in health behaviors (e.g., sleep and physical activity) and objective markers of health (e.g., blood pressure; Wilson et al., 2020). Future research could also investigate moderators of transition-imposed changes to couple concordance. For example, older age tends to go along with an increased focus on close relationships such as the one with a romantic partner, as compared with other relationships (English & Carstensen, 2014) and some research has associated older age with stronger health concordance (Wilson et al., 2020), which could mean that transition-imposed changes on concordance vary by the age at transition.

Conclusion

Transitions represent important benchmarks of life course trajectories, shaping twists and turns in health and well-being. Our findings add to a field of research emphasizing that partners are closely linked in their life satisfaction and several self-reported indicators of health over time, both when it comes to the long-term direction of changes (e.g., increases or decreases over time) as well as year-to-year fluctuations around these long-term trends. Investigating transition-imposed changes to couple concordance, we showed that concordance in long-term trajectories was stronger after (averaged $r = .81$) as compared with before transitions (averaged $r = .43$). This speaks to the notion that transitions (particularly those directly involving a change to the family system) provide a sensitive time frame for changing couple dynamics, potentially sending both partners on shared upward or downward trajectories in health and well-being. A key issue for future research is to identify how couples' dynamic interconnectedness can be harnessed to support both partners' long-term health and well-being.

Data Availability

Data are from multidisciplinary, longitudinal studies that are not under our direct control and available for free for researchers on request (SOEP: https://www.diw.de/en/diw_01.c.601584.en/data_access.html; HILDA: <https://melbourneinstitute.unimelb.edu.au/hilda/for-data-users>).

Declaration of Conflicting Interests

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Supplemental Material

Supplemental material is available online with this article.

Note

1. Please note that this deviates from our preregistered plan of using all available data and was implemented throughout the review process. Focusing on a narrower time frame around the transitions allowed for a better resolution to observe change in the parameters of interest.

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