Work-Family Conflict and Well-Being among Married Couples Revisited: A

Longitudinal and Dyadic Approach

Abstract

We examine whether changes in work-family conflict predict changes in one's own (i.e., actor effects) or their partners' (i.e., partner effects) health and well-being among dual-earner married couples, as well as gender differences in these relationships. We draw on data collected from 805 married dual-earner couples in waves 6 and 8 of the nationally representative German Family Panel survey. We use actor-partner interdependence models to examine how changes in one's work-to-family and family-to-work conflict affect changes in their own and their partners' life satisfaction, mental health, and self-reported physical health. We found (1) significant actor effects for all outcomes and stronger actor effects among men than women on mental health; (2) significant partner effects for life satisfaction and mental health, and stronger partner effects among men than women on life satisfaction; (3) stronger actor effects than corresponding partner effects for life satisfaction and mental health.

Keywords: work-family conflict; well-being; health; dyadic/couple data; gender.

Combining work and family responsibilities has become an important issue for a greater share of the population in Europe. In Germany, for example, 63% of women with a child less than 6 years of age were employed in 2017, up significantly from 47% in 2005; corresponding figures for men were 87% in 2005 and 91% in 2017 (Eurostat, 2018). Consequently, there has been a growing concern in understanding work-family conflict in Europe (Anttila et al., 2015). A prevalent and fast-growing stressor that affects a large proportion of the working population, work-family conflict represents a critical public issue, given its close relationship with a large number of adverse health and well-being outcomes such as morbidity and depressive symptoms (Eby et al., 2005; Frone et al., 1996; Hill, 2005; Kinnunen, Geurts, & Mauno, 2004; Marchand et al., 2016; Moen et al., 2016; Shimazu et al., 2013; Westrupp, 2016).

Despite the large body of literatures on consequences of work-family conflict, most adopt a highly individualized approach, focusing on individual workers exclusively and ignoring the couple context, even as a great number of workers live in partnered relationships. This ego-centric perspective on work-family conflict overlooks the possibility of linked-lives, that the lives of individuals affect and are affected by the lives of others in salient relationships such as couples (Elder et al., 2003). Failure to conceptualize work-family conflict as a contagious and stress-proliferation process (Pearlin et al., 2005) likely underestimates the true harmful consequences of this stressor that is of high salience to contemporary work and family life and policy. In this research, we draw from stress process theory to understand actor and partner effects of work-family conflict on three important well-being outcomes: life satisfaction, mental health, and self-reported physical health; we also parse results by gender. Although the spillover between work and family can be both negative and positive (Grzywacz & Marks, 2000), we

concentrate on work-family conflict because negative conditions typically have stronger effects than good ones (Baumeister et al., 2001) and also due to data availability (for a review on positive work-family spillover, see McNall et al., 2010).

Specifically, we draw on dual-earner married couple data from the German Family Panel survey, a nationally representative, longitudinal dataset. Today's unified Germany was composed of a conservative welfare state in the West and a socialist system in the East before 1990. The East has had a long tradition of institutional care for children, and childbirth and the employment of both parents have been supported (Dorbritz, 2008). By contrast, West Germany has long been associated with a family-centered male-breadwinner/female-homemaker model, with lower overall gender equality compared with the East (Rosenfeld, Trappe, & Gornick, 2004). As a way to support working parents and to encourage fathers to be more involved in childcare, Germany introduced a new parental leave system similar to the Swedish model in 2007, which grants a benefit of 67 percent of prior earnings as well as two use-it-or-lose-it "daddy months". Therefore, institutional support to reconcile work and family has been rising in Germany but work-family conflict is still a prevalent stressor that affects many Germans.

In sum, our research contributes to the literature in four aspects. First, we extend previous studies by investigating how well-being is shaped by not only one's own but also their partner's work-family conflict, which demonstrates that individuals linked together by key social roles can indeed share the experience of social stress. These crossover effects are theorized and speculated in the literature but have received less empirical attention compared with spillover effects (Greenhaus, Allen, & Spector, 2006). Second, work-family phenomena and the stress processes are inherently dynamic (Pearlin, 1999) but have primarily been examined through cross-sectional designs that by default are static and that many times achieve results different from longitudinal

studies (Mullen et al., 2008). Relatedly, in a methodological review of work-family studies, Lapierre and McMullan (2016) noted that 77% of the studies reviewed were based on nonprobability convenience sampling. By drawing on nationally-representative longitudinal data over two years, we move beyond conventional cross-sectional studies and studies that use convenience samples to provide a stringent test for crossover effects. To the best of our knowledge there is only one other study in the context of work-family conflict and well-being where longitudinal and crossover perspectives were combined (Hammer et al., 2005), but that study was conducted among couples with both childcare and elder care responsibilities so it is unclear to what extent their findings can be generalized. They also did not test gender differences, another gap we fill in this research.

Third, we move beyond previous studies by using the more advanced actor-partner interdependence model (APIM) to disentangle the various health and well-being effects of own and partner's work-family conflict. Also, given that our measures were independently reported by both partners, we are better positioned to minimize the inflation problem resulting from proxy reporting, a problem not uncommon in couple research. Fourth, we examine three interdependent but distinct health and well-being outcomes (Linton, Dieppe, & Medina-Lara, 2016): *life satisfaction* as a global measure of hedonic well-being captures the cognitive, overall evaluation individuals make between a standard they perceive as appropriate for themselves and their actual life circumstances, whereas *mental health* is a more objective measure of the presence of specific symptoms of mental illness. The absence of mental health symptoms does not guarantee the presence of hedonic well-being: Many individuals otherwise free of mental disorder do not necessarily feel satisfied with life. *Self-rated physical health* assesses performance of bodily functioning and is a reliable predictor of subsequent mortality (Idler & Benyamini, 1997). Taken

together, these outcomes capture diverse reactions to stress and provide a more complete picture regarding the well-being and health costs associated with work-family conflict.

THEORETICAL PERSPECTIVES AND PREVIOUS RESEARCH

Stress Process: Work-Family Conflict And Well-Being (Actor Effects)

Our research draws from stress process theory (Pearlin et al., 1981; Pearlin et al., 2005), which argues that stress, from varying sources and of different types, can become involved in a causal dynamic process over time to influence individual health and well-being. One key assumption of the stress process theory is that "social stress is not about unusual people doing unusual things and having unusual experiences" (Pearlin, 1999: 396). Indeed, stress arises out of commonly-held social roles of everyday life and in typical social contexts. Given that most individuals' daily interactions occur within the institutional settings of work and family, what happen in these two domains provide ample opportunities for exposure to stressors that, in turn, can undermine well-being (Avison & Turner, 1988; Pearlin, 1983). One such type of stress is work-family conflict, "a form of inter-role conflict in which the role pressure for the work and family domains are mutually incompatible in some respect" (Greenhaus & Beutell, 1985: 77). Depending on the origin of the stressor, we distinguish work-to-family conflict (WFC) and family-to-work conflict (FWC). As stressors, both WFC and FWC can elicit negative emotions (Lazarus, 1999) and affect the physiology by suppressing the immune, digestive, sleep, and reproductive systems (McEwen, 2008), which may result in psychological and physiological "wear and tear" (McEwen, 2008) and thereby negatively affect mental and physical well-being.

Empirical research generally supports a relationship between work-family conflict and adverse well-being. For example, Allen and her colleagues (2000) in their meta-analysis showed that the weighted average of the correlations were -0.28 (range: -0.09 to -0.53) between WFC

and life satisfaction, 0.29 (range: 0.16 to 0.57) between WFC and general psychological strain, and 0.29 (range: 0.08 to 0.53) between WFC and somatic/physical symptoms. More recent studies have provided more evidence on the negative health and well-being consequences of WFC and FWC, such as reduced life satisfaction (Hill, 2005), psychological distress (Kinnunen et al., 2004; Moen et al., 2016; Shimazu et al., 2013; Westrupp, 2016), depression (Eby et al., 2005; Frone et al., 1996; Marchand et al., 2016), and somatic complaints (Eby et al., 2005; Frone et al., 1996). Because the outcomes we examine include proximate (life satisfaction and mental health) as well as more delayed ones (physical health) that may be affected only over longer periods of stress exposure, we expect that:

Hypothesis 1a: Increases in WFC and FWC are associated with declines in life satisfaction, mental health, and self-reported physical health, and the associations are stronger for life satisfaction and mental health than for self-reported physical health.

The relationship between own work-family conflict and well-being likely differs by gender, one research question we examine empirically through moderation analysis. One important insight of stress process theory is that constellations of stress are situated within the larger structures of society, which shape individual lives and relationships, as well as how stress is experienced (Pearlin et al., 2005). In other words, a given stress can have heterogeneous impacts due to the pervasive influence of background characteristics (e.g., gender, race/ethnicity) or situational context (e.g., neighborhoods). Here we highlight the role of gender given that expected roles and practices around work and family are heavily shaped and guided by gender norms such that women typically more strongly identify with the family domain and men more strongly identify with the work domain. Given that stressors are more psychologically and

physically damaging when they threaten one's more valued identity (Thoits, 1991), the well-being consequences of work-family conflict may differ by gender.

Regarding whether it is men or women who are more vulnerable to WFC and FWC, two possibilities exist. On one hand, given the centrality of breadwinning in men's lives, any stressor that disrupts work may be particularly salient for them, leading men to be more susceptible to FWC than are women. Conversely, women, in light of their assumed responsibility for creating and sustaining a satisfactory family life, are more likely to be affected by WFC, because WFC may undermine their maintenance of a positive family-related self-image. On the other hand, it is likely that sources of stressors matter more in understanding gender differences. Specifically, men may be more affected by WFC because work responsibilities are more important for them, so conflict arising from work is more likely to translate into straining experiences that negatively affect their well-being. Similarly, given the centrality of family responsibilities for women, family as a source of conflict (i.e., FWC) may be more strongly felt by women, leading to adverse well-being. Indeed, empirical evidence regarding gender differences is mixed. Two studies (Marchand et al., 2016; Ngo & Lui, 1999) support the first argument, showing stronger negative consequences of WFC for women and stronger negative consequences of FWC for men. Consistent with our second argument, another two studies reported that the relationships between WFC and depression (Frone et al., 1996) and self-reported health (Tunlid, 2014) were stronger for men than for women. Notably, none of these studies used longitudinal data to examine the relationship between changes in WFC/FWC and changes in well-being, so it is unclear what gender patterns may emerge when moving beyond cross-sectional studies.

Hypothesis 1b: The associations between increases in WFC and FWC and declines in life satisfaction, mental health, and self-reported physical health differ between men and women.

Stress Proliferation: Partner's Work-Family Conflict And Well-Being (Partner Effects)

Previous studies on work-family conflict have focused on the intrapersonal effects of stress, ignoring the interdependent nature of couple relationships (Greenhaus et al., 2006; Symoens & Bracke, 2015). But for our dual-earner-couple sample, a defining feature is interdependence, that one partner's experiences have the capacity to influence the outcomes of the other partner. As Pearlin et al. (2005: 213) observed, "all those linked by shared membership in a role set may feel the consequences of stressors initially confronted by only one member . . . here we suggest a different form of proliferation, one that disruptively spreads to important social relationships and adversely affects the lives of others in those relationships." This idea of stress proliferation, that a stressor crosses over to people with whom the focal person maintains intimate social relationships (Pearlin et al., 2005), extends the original stress process theory by suggesting that circumstances in one's life—such as conflict experienced between work and family domains— have implications for the lives of their significant others.

Of the few studies on crossover effects of work-family conflict, most draw on cross-sectional data. Bakker and his colleagues (2009), for example, showed that one partner's WFC crossed over to affect the other partner's emotional exhaustion and relationship satisfaction. Using a Chinese sample of dual-earner couples, Lu and his colleagues (2016) found that one partner's WFC was negatively related to the other partner's family satisfaction, mental well-being, and physical well-being. A sample of Belgians showed that depressive feelings increased with their partners' WFC for women but not for men (Symoens & Bracke, 2015). The only longitudinal research used U.S. dual-earner couple data to show that husband's WFC was associated with wife's depressive symptoms one year later but not vice versa (Hammer et al., 2005). But as described, this study was conducted among couples in the sandwiched generation

with both childcare and elder care responsibilities. In the present study, we advance understanding of the links between work-family conflict and well-being by drawing on nationally representative data and using a dyadic and longitudinal approach. We expect a crossover process between partners in a marital dyad:

Hypothesis 2a: Increases in partner's WFC and FWC are associated with declines in own life satisfaction, mental health, and self-reported health, and the associations are stronger for life satisfaction and mental health than for self-reported health.

Prior crossover research is also limited in its inattention to gender differences in crossover effects. Many studies focus on one gender partly due to data limitation. Even in the pioneering study of Hammer et al. (2005), no statistical test was conducted to formally examine gender differences; we therefore respond to their call that "future research should consider having as the focus a test of gender differences in the relationship among work-family conflict . . . and depression over time." (p. 151). There are two possibilities in the gender differences in crossover effects. One possibility is that, women are less vulnerable to their partners' WFC than are men, whereas men are less vulnerable to their partners' FWC than are women. Take WFC as an example. Because women are culturally expected to value their family more, even under the stressful conditions of their husbands' high WFC, cultural expectations could alleviate any negative impacts. Husbands' WFC may even provide women with an opportunity to self-assert their family identity. Similarly, because women are culturally expected to organize their lives around family and are more likely to experience FWC than are men (Byron, 2005), women' FWC is more likely to be considered a "normal" experience by their husbands and thus imposes less harmful consequences for husband's well-being. An opposite possibility is that, women are more vulnerable to their partners' WFC than are men, whereas

9

men are more vulnerable to their partners' FWC than are women. This is because WFC may be more strongly felt among men given the centrality of work in their lives, which increases the chance of their wives being affected by husbands' WFC. Similarly, as FWC is more strongly felt among women, who are usually socialized to value family, men are more vulnerable to their partners' FWC. Two studies reported results in line with the second speculation: a relationship between partners' WFC and depressive feelings was found only for women (Hammer et al., 2005; Symoens & Bracke, 2015), although neither formally tested whether or not gender differences were significant. Given limited empirical research in this area, our next hypothesis is tentative:

Hypothesis 2b: The associations between increases in partner's WFC and FWC and declines in life satisfaction, mental health, and self-reported physical health are different between men and women.

Lastly, we hypothesize that the crossover effects of partner's WFC or FWC on health and well-being, to the extent that they exist, are possibly weaker than the corresponding actor effects (i.e., own WFC or FWC on own health and well-being). This is because, unlike actor effects, partner effects are more likely to be indirect effects mediated by the level of communication and interaction between partners (Westman, 2006).

Hypothesis 2c: The actor effects of WFC and FWC on life satisfaction, mental health, and self-reported health are stronger than the respective partner effects of WFC and FWC.

DATA AND METHODS

This study uses waves 6 and 8 data from the German Family Panel survey (Bruderl et al., 2017a). A detailed description of the study can be found in Huinink et al. (2011). Funded by the German Research Foundation (DFG), one focus of this dataset is on partnership and family dynamics in Germany. This survey began in 2008/09 with the goal of annually collecting survey data from a

nationwide, random sample of 12,402 anchor persons. In Wave 1, permission to contact their partners for partner survey was asked for 7,234 anchor persons who reported to be in a relationship, resulting in 3,743 anchors who could be matched with their partner's data in Wave 1. By Wave 8, 2,051 partners remained in the survey (Bruderl et al., 2017b). Given our research focus, we excluded 444 couples whose relationships dissolved between waves 6 and 8 or who had missing partner information in either wave. We further excluded those couples who were in cohabiting relationships (N=428) and, given our focus on work-family conflict, couples where either one or both spouses were not in the labor force (N=374), resulting in a final sample of 805 dual-earner couples who remained married to the same spouse between waves 6 and 8. We focus on Wave 6 (2013/2014) and Wave 8 (2015/2016) because these are the only two waves where respondents answered questions about work-family conflict. Note that given the different norms surrounding marriage and cohabitation, the health and well-being consequences of work-family conflict possibly differ by types of union. Space limitation and the small sample size (N=196), however, do not allow us to analyze cohabiting couples separately. The differential effects of work-family conflict on well-being by types of union is examined in detail in another paper (Author, 2018), which does show that some of the adverse consequences of work-family conflict vary between married and cohabiting couples.

The full list of variables, along with separate descriptive statistics based on unimputed data for wives and husbands, are presented in Table 1. On average, wives in our sample were 37 years old and husbands were 40 years old. Around 47% of married men and 55% of married women had completed upper education (equivalent to completing a Bachelor's degree in the United States). Overall, these couples had been married for 9 years.

[Table 1 about here]

Dependent Variables

Life satisfaction is measured by "All in all, how satisfied are you with your life at the moment?"
The answer category ranges from 0 (very dissatisfied) to 10 (very satisfied). Change in life
satisfaction is calculated by subtracting the wave 6 from the wave 8 score.

Mental health is measured by six indicators. Respondents were asked whether they feel in
general that: (1) My mood is melancholy. (2) I am happy. (3) I am depressed. (4) I am sad. (5) I
am in desperation. (6) My mood is gloomy. The answer category ranges from 1 (almost never) to
4 (almost always). We reverse code items 1, 3, 4, 5 and 6 and average the six items to create the
scale, so that higher values indicate better mental health. Cronbach's alpha for men and women
are 0.77 and 0.82, respectively, indicating high internal reliability. Change in mental health is
calculated by subtracting the wave 6 score from the wave 8 score.

Physical health is measured by "How would you describe your health status during the
past four weeks, generally speaking?" The answer category ranges from 1 (bad) to 5 (very good).
Change in physical health is calculated by subtracting the wave 6 from the wave 8 score. The
correlation matrix for these three dependent variables is shown in Supplementary Table (S1).

Independent Variables

This study uses two key independent variables: changes in WFC and FWC. To measure *WFC*,
respondents were asked: "(1) Because of my workload in my job, vocational training, or
university education, my personal life suffers. (2) Even when I am doing something with my
friends, partner, or family, I must often think about work. (3) After the stress of work I find it
difficult to relax at home and/or to enjoy my free time with others. (4) My work prevents me
from doing things with my friends, partner, and family more than I'd like." The response to each
item ranges from 1=not at all to 5=absolutely. Cronbach's alpha for men and women are 0.76

and 0.80, respectively, indicating high reliability. These four items are averaged to create the scale, with higher values indicating greater WFC. Change in WFC is calculated by subtracting the wave 6 from the wave 8 score.

To measure *FWC*, respondents were asked the following questions: "(1) Because I am often under stress in my private life, I have problems concentrating on my work. (2) Because of my personal schedule, I often lack time to do my work. (3) The time I need for my partner, family, and friends keeps me from being more involved in my job, vocational training, or university education. (4) Conflicts in my personal life reduce my work performance." The response to each item ranges from 1=not at all to 5=absolutely. Cronbach's alpha for men and women are 0.77 and 0.79, respectively, indicating high internal reliability. These four items are averaged to create the scale with high values indicating greater FWC. Change in FWC is calculated by subtracting the wave 6 score from the wave 8 score.

Control Variables

We control for covariates that are correlated with work-family conflict and our outcomes (Grant-Vallone & Donaldson, 2001; Hill, 2005; Kinnuen et al., 2004). For time-invariant control variables (educational attainment, relationship duration, and nationality), we use measures from Wave 6. For time-variant control variables (work hours, income, presence of preschool children living in the household, and whether the couple lives in East or West Germany), we use change scores between waves 6 and 8. Consistent with prior research (Morosow & Trappe, 2018), *education* is categorized into three groups: low (lower secondary education or less), intermediate (a high school diploma or completion of the tenth grade of polytechnic secondary school), and high (university of applied sciences or a higher education entrance qualification). *Relationship duration* is calculated by converting the duration of current marriage in months into years. Due

to skewness, we use the logged transformation of this variable. *Nationality* is a dummy variable (1=German nationality, 0= all other groups). *Work hours* is measured as a continuous variable. We use the log transformation of respondents' *net income* last month to deal with skewness. We also control for *presence of preschool children* living in the household (1=age of youngest child is less than six years old, 0=all the rest) and *residence in East Germany* (1=Yes, 0=No).

Analytical Strategy

To test the actor and partner effects, we use the actor-partner interdependence model (APIM), implemented through Structural Equation Modeling (SEM) in AMOS 22.0. As part of SEM, maximum likelihood estimation is used to deal with any incomplete data. The APIM (Kenny et al., 2006; Kenny & Cook, 1999) has been extensively used in prior research for dyadic data analyses (e.g., Author, 2010; Stafford, 2016; Stas et al., 2018). Consistent with our theoretical framework, the APIM allows one's own characteristics to affect not only their own outcomes (i.e., actor effects) but also their partner's outcomes (i.e., partner effects). To capture the interdependence of interpersonal relationships, the APIM draws on dyadic data and considers measures taken from each person within the relationship rather than merely summing or averaging the scores of both (Cook & Kenny, 2005). We use SEM to estimate the APIM, which has advantages over conventional methods such as ANOVA or regression models in that (1) SEM allows multiple equations to be estimated and tested simultaneously and (2) the relations between different parameters in different equations can be specified and compared directly (see Cook & Kenny, 2005 for further information).

We use the change score strategy to model our longitudinal data; in other words, we estimate the actor and partner effects of changes in WFC and FWC on changes in life satisfaction, mental health, and physical health. In his comparison between two different

approaches to model changes, Johnson (2005) recommended change scores over lagged

dependent variables, because the latter suffers from (1) measurement errors in the lagged

dependent variable and (2) omitted variables bias (i.e., unmeasured background variables that

affect both the initial level of the outcome and the change in that outcome).

Our analytical sequence is similar to the one used in prior research (Author, 2010; 2017).

The models across tables 2-4 proceed as follows: Model 1 tests the actor effects of changes in

WFC and FWC on changes in well-being outcomes (Hypothesis 1a). Model 2 tests whether

gender moderates the actor effects by constraining actor effects between husbands and wives to

equality and testing whether this model is significantly different from Model 1 (Hypothesis 1b).

Building on the better-fitting model (Model 1 or Model 2), Model 3 adds the partner effects and

tests the partner effects of changes in WFC and FWC on changes in well-being, net of actor

effects (Hypothesis 2a). Model 4 tests whether gender moderates the partner effects by

constraining the partner effects between husbands and wives to equality and testing whether this

model is significantly different from Model 3 (Hypothesis 2b). Model 5 tests whether actor and

partner effects are statistically different from one another by constraining the partner and actor

effects to equality and testing whether this model is a significant improvement over a model

where partner and actor effects are not constrained to be equal (Hypothesis 2c). For all model

comparisons, we use chi-square difference tests. When there is a significant difference between

the unconstrained (i.e., where coefficients are estimated separately) and constrained models (i.e.,

where coefficients are constrained to be equal for both genders or the actor and partner effects

are constrained to be equal), the unconstrained model with separate coefficients estimates is

preferred. Conversely, a constrained model with pooled estimates is preferred (Kenny & Cook,

1999). All models in tables 2-4 are adjusted for control variables, but these estimates are not

shown due to space limitation (available upon request). We also bold the best fitting models in tables 2-4 to facilitate reading.

RESULTS

Descriptive Findings

Descriptive findings, as well as t-test or chi-square test results for gender differences in our measures, are displayed in Table 1. There are no gender differences in changes in life satisfaction, mental health, or physical health over the two years. At Wave 6, wives reported significantly greater life satisfaction than did husbands, whereas husbands had better mental and physical health compared with wives. In both waves 6 and 8, husbands had significantly higher WFC and FWC than did wives. No gender difference is found, however, for changes in WFC or FWC between waves. In general, wives were better educated but husbands had more income and worked longer hours in both waves, although the increases in work hours and income between waves were significantly higher for wives.

Multivariate Analyses

Predicting Changes in Life Satisfaction

We first estimate the actor and partner effects of changes in WFC and FWC on changes in life satisfaction (Table 2). Significant actor effects emerge for both men and women (see Model 1 in Table 2). To examine whether there are any gender differences in the actor effects of changes in work-family conflict, we run a chi-square difference test comparing the unconstrained Model 1 and the constrained Model 2 where actor effects are constrained to be equal for both genders. The two models are not significantly different from each other ($\Delta\chi^2$=0.36, df=2, p>0.10). Thus, Model 2 is preferred over Model 1. In other words, increases in both WFC and FWC are

16

associated with a decrease in life satisfaction, and the magnitudes of these associations are comparable between men and women.

Based on Model 2, Model 3 adds partner effects of changes in WFC and FWC. The chi-square difference test comparing Model 2 and Model 3 indicates that Model 3 is preferred ($\Delta\chi^2$=16.60, df=4, p<.001), suggesting that adding partner effects improves our understanding of changes in life satisfaction. To test whether there are any gender differences in partner effects of changes in work-family conflict, we run a chi-square difference test comparing Model 3 (an unconstrained model) and Model 4 (where partner effects are constrained to be equal for both genders). We find evidence supporting gender differences in partner effects ($\Delta\chi^2$=5.19, df=2, p<.10; i.e., Model 3 is preferred over Model 4). Specifically, increases in partner's WFC predict a greater decline in men's than women's life satisfaction. Lastly, Model 5 tests whether the actor and partner effects of changes in work-family conflict are statistically equal. In other words, the analysis examines whether the change in life satisfaction is equally associated with one's own and one's spouse's change in WFC (or FWC). According to the chi-square difference test, actor and partner effects are indeed significantly different from each other ($\Delta\chi^2$=9.39, df=4, p<.10; i.e., Model 3 is preferred over Model 5), with actor effects significantly stronger than partner effects.

[Table 2 about here]

Predicting Changes in Mental Health

Table 3 presents models for changes in mental health. Model 1 shows significant actor effects of changes in WFC and FWC on changes in mental health. To examine gender differences in actor effects, we run a chi-square test comparing the unconstrained Model 1 and the constrained Model 2 (where actor effects are constrained to be equal for both genders). The chi-square difference test demonstrates that these two models are significantly different from each other

17

($\Delta\chi^2$=15.55, df=2, p<0.001), so Model 1 is preferred over Model 2, indicating gender differences in actor effects, with the relationships between changes in WFC (and FWC) and changes in mental health stronger for men than for women. Based on Model 1, Model 3 adds the partner effects. A chi-square difference test comparing Model 1 and Model 3 indicates that Model 3 is preferred ($\Delta\chi^2$=6.20, df=2, p<.05); in other words, adding partner effects improves our understanding of changes in mental health. To test whether there are any gender differences in partner effects of changes in work-family conflict, we run a chi-square difference test to compare Model 3 and Model 4, finding Model 4, where partner effects are constrained to be equal between men and women, is preferred over the unconstrained Model 3 ($\Delta\chi^2$=3.23 df=2, p>.10). In other words, there are no gender differences in partner effects of changes in work-family conflict; both men's and women's mental health suffers if their partner's FWC increases. Finally, according to the chi-square difference test comparing Model 4 and Model 5, actor and partner effects are significantly different from each other ($\Delta\chi^2$=59.86, df=6, p<.001), with the actor effects significantly stronger than the partner effects.

[Table 3 about here]

Predicting Changes in Self-Reported Physical Health

Results for changes in self-reported physical health are shown in Table 4. Model 1 in Table 4 shows significant actor effects of changes in WFC on changes in physical health. Model 2 tests whether there are any gender differences in actor effects of changes in work-family conflict. The chi-square difference test comparing Models 1 and 2 demonstrates that the two models are not significantly different from each other ($\Delta\chi^2$=0.73, df=2, p>0.10), so Model 2 is preferred over Model 1, indicating no gender difference in actor effects. Specifically, for both men and women, increases in WFC (but not FWC) are associated with declines in physical health. To test for

partner effects, we run a chi-square difference test comparing Model 2 and Model 3 in which partner effects are added, finding Model 2 is preferred over Model 3 ($\Delta\chi^2$=3.88, df=4, p>.10). Partner effects therefore do not improve model fit when physical health is the outcome. Given the null finding on partner effects, we do not further test for gender differences in partner effects or differences between actor and partner effects.

[Table 4 about here]

To sum our findings (see a summary table in Supplementary Table S2), the best-fitting model for changes in life satisfaction is Model 3 (Table 2), where there are significant actor effects of WFC and FWC (with no gender differences) and significant partner effects of WFC that is stronger among men, and where actor effects are statistically stronger than partner effects. The best-fitting model for changes in mental health is Model 4 (Table 3), where there are significant actor effects of WFC and FWC that are both stronger for men, and significant partner effects of FWC (with no gender differences), and where actor effects are statistically stronger than partner effects. The best-fitting model for changes in physical health is Model 2 (Table 4), where there are significant actor effects of WFC (with no gender differences) but no partner effects. Across all outcomes, we note that the estimates of the actor effects (Model 1) and gender differences in actor effects (Model 2) are almost unchanged after partner effects (Model 3) or gender differences in partner effects (Model 4) are added, indicating robust actor effects of work-family conflict even net of corresponding partner effects.

DISCUSSION

The links between work-family conflict and work and non-work outcomes have been extensively investigated (e.g., Allen et al., 2000; Author, 2017; 2018; Hill, 2005; Ngo & Lui, 1999; Moen et al., 2016). Only few studies, however, have explored these relationships in a longitudinal, couple

context (cf. Hammer et al., 2005). This study, drawing on the German Family Panel data, contributes to the literature by examining how *changes* in work-family conflict (in both directions) produce corresponding *changes* in one's own (actor effects) and their partner's (partner effects) life satisfaction, mental health, and self-reported physical health. In doing so, we respond to the call of paying more attention to the couple context (e.g. Casper et al., 2007; Geurts & Demerouti, 2003) so as to gain a better insight into the processes that link work, family, and well-being.

We first contribute by providing longitudinal evidence regarding the actor and partner effects of work-family conflict on a diverse set of health and well-being outcomes. Consistent with Hypotheses 1a and 2a developed based on stress process theory, we show that conflicts due to incompatibility between two important institutions—work and family—trigger a social stress process that harms health; furthermore, the stress created affects not only one's own but proliferates to affect spouse's life satisfaction (WFC for men) and mental health (FWC for both men and women). These findings are substantial considering that: (1) we draw on longitudinal data in which significant results are less likely to occur (Mullen et al., 2008), (2) work-family conflict and well-being measures are independently collected from both spouses (rather than proxies from a single spouse, which tend to inflate partner effects), and (3) compared with domain-specific outcomes, significant findings are less likely to occur for well-being outcomes located in neither the work nor the family domain (Amstad et al., 2011; Byron, 2005). The work-family field has long been credited for advancing a better understanding of how the work and family environments may foster ill effects. The added understanding that changes in both own and partner's work-family conflict matter in structuring well-being provides important empirical evidence for policy initiatives and organizational interventions to create a family-friendly work

20

environment; it also highlights the importance of including partner effects in future well-being research. Of the three outcomes, physical health is the only one for which we do not find significant partner effects. This finding is understandable given that, as we discuss below, partner effects are generally less consequential than actor effects, and that it might take longer time for physical health consequences associated with work-family conflict to manifest, thereby constraining our ability to detect them.

Second, contrary to Hypotheses 1b and 2b, we do not find strong evidence for gender differences in actor or partner effects of work-family conflict. Only in two occasions do significant gender differences emerge: Compared with women, men are more strongly affected by their own WFC or FWC (for the outcome mental health) or by their partner's WFC (for the outcome life satisfaction). These two gender differences may result from men's less experience in handling conflicts between work and family and generally smaller social support network, which make them more susceptibility to such stressors. However, given the largely non-significant gender differences found in our research and mixed empirical evidence in the literature in general, we advise more future research and theorizing to better understand the important social issue regarding gender differences in the relationship between (actor's or partner's) work-family conflict and well-being.

Third, we reveal differences in actor and partner effects across three outcomes and between WFC and FWC. For actor effects, WFC is associated with all three outcomes but FWC does not affect physical health. This finding is consistent with prior research showing that physical health is affected by WFC but not FWC (Charkhabi et al., 2016), suggesting that the workplace as a source of stress is more harmful for physical health compared with the family as a source. This finding is important because, as we show in Table 1, WFC is more prevalent than

21

FWC for both men and women, indicating greater public health costs associated with WFC. For partner effects, we note two intriguing findings. One is that wife's WFC affects husband's life satisfaction (but not mental or physical health) whereas husband's WFC does not affect wife's well-being. Although it is impossible to provide a definitive explanation, it is likely that, given the gendered expectations regarding work and family roles, it is more socially unacceptable for work matters to intrude into women's than into men's family life. Wife's WFC, therefore, may be perceived by many men as contrary to socially acceptable gender roles, which leads to men's reduced life satisfaction, a well-being outcome that involves comparison between a standard they perceive as appropriate and their actual circumstances (Linton et al., 2016). This finding is also consistent with previous research showing that the family domain matters more in determining life satisfaction than other domains (Rojas, 2007), so life satisfaction suffers if the family domain is disrupted due to partner's WFC. Another intriguing finding for partner effects is that partners' FWC (but not WFC) affects both men's and women's mental health. Partner's FWC likely indicates some unresolved problems in the home, some of which may have resulted from the focal person. Therefore, compared with partner's WFC, respondents are more likely to attribute the responsibility for partner's FWC internally (e.g., forgetting to picking up kids resulting in their partner's FWC). This internal attribution of responsibility for partner's FWC may result in blaming themselves and feeling guilty, leading to increased mental health symptoms. Despite these speculations, we highlight that the nature of our data restricts our ability to directly test them; future studies with more detailed measures or qualitative information (e.g., types of events that trigger WFC/FWC, resources and support available to deal with these stressors, coping strategies, gender ideologies, etc.) are essential to shed light on these variations across outcomes and directions of work-family conflict.

Fourth, consistent with Hypothesis 2c, we provide one of the first evidence showing that actor effects tend to be stronger than partner effects. Actor effects are stronger possibly because, for partner effects to appear, both spouses need to engage in close and repeated interactions with each other, which might not hold for all couples (Westman, 2006). Further, it is possible that some are able to resolve their work-family conflict effectively before it is even perceived by their spouse, thereby preventing the flow of the stressor from one to the other. We do not, however, find actor and partner effects to differ for physical health. This similarity in actor and partner effects may be because it takes time for the stressor of work-family conflict to get under the skin to affect physical health, so our observation window (two years) might not be long enough to capture such changes due to either actor or partner effects. In light of the scant empirical analysis evaluating differences between actor and partner effects of work-family conflict, our finding highlights that, despite well-being consequences of partners' work-family conflict, it is nevertheless one's own work-family conflict that is more important in shaping well-being.

There are several limitations of this research. First, life satisfaction and physical health were measured with one item, which might have created issues such as measurement error. Second, due to data limitation, we cannot examine positive work-family spillover and its well-being consequences. Previous research did find that both own and spouse's positive spillover was associated with subsequent improvements in depression (Hammer et al., 2005). Future research with such measures is necessary to advance understanding regarding the work-family interface and health. Third, we cannot control for personality or other potential confounders that likely shape both work-family conflict and our outcomes. In addition, future research would benefit from testing the effects of contextual variables; national contexts may shape the work-family interface and its impact on various outcomes (Ruppanner & Huffman, 2014). Fourth, the

23

time window of two years might be too short for health consequences associated with work-family conflict to occur, but at the same time, it might be too long for establishing a clear relationship between work-family conflict and well-being if work-family conflict changes constantly. Although some reveal that work-family conflict is fairly stable across various time lags (Rantanen et al., 2012), more research is needed to differentiate work-family experiences that are episodic and those that are enduring. Fifth, we focus on married couples due to the small sample size of cohabiting couples, but it would be important for future researchers to compare the effects of work-family conflict on health and well-being across different unions given the rising share of cohabiting couples. Finally, despite strengths of quantitative research, qualitative research such as interviews conducted with both spouses would shed further light into the stressors related to work-family balance and their impact on individual lives.

Overall, this study makes significant contribution to the work, family, and health literature by examining the effects of changes in work-family conflict on changes in health and well-being using nationally-representative longitudinal data over two years. Our results highlight the importance of using couple-level data and testing crossover effects in addition to spillover effects to further understand the consequences of work-family conflict. Situated in the context of Germany, this study has opened path in understanding work-family interface and its impact in a country where family is considered a premier institution but institutionalized support to reconcile work and family is still lacking. More comparative research is essential to understand how social norms, policies, and institutionalized support may shape work-family dynamics and affect individual well-being in different social contexts.

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Table 1. DESCRIPTIVE STATISTICS FOR ALL VARIABLES AMONG MARRIED COUPLES

Variable name	Wives			Husbands		
	Range	Mean (SD)	N	Range	Mean (SD)	N
Dependent Variables						
Life satisfaction (wave 6)	1-3	2.04*(0.82)	799	1-3	1.97*(0.79)	799
Life satisfaction (wave 8)	1-3	2.00(0.81)	798	1-3	1.94(0.81)	798
Δ Life satisfaction	-2-2	-0.04(0.78)	792	-2-2	-0.03(0.78)	792
Mental health (wave 6)	1-4	3.44***(0.45)	770	1-4	3.52***(0.41)	777
Mental health(wave 8)	1-4	3.49(0.42)	757	1-4	3.53(0.41)	761
Δ Mental health	-2.67-2	-0.05(0.37)	792	-2-2	0.01(0.38)	792
Physical health (wave 6)	1-5	3.67**(0.91)	803	1-5	3.80**(0.91)	803
Physical health (wave 8)	1-5	3.65(0.93)	804	1-5	3.72(0.91)	804
Δ Physical health	-4-3	-0.02(1.02)	802	-5-3	-0.08(0.98)	802
Independent Variables						
WFC (wave 6)	1-5	2.19***(0.88)	798	1-5	2.47***(0.88)	798
WFC (wave 8)	1-5	2.21***(1.01)	800	1-5	2.49***(0.88)	800
Δ WFC	-10-3.25	0.02(0.93)	794	-2.5-3	0.02(0.75)	794
FWC (wave 6)	1-5	1.69***(0.67)	794	1-5	2.19***(0.88)	794
FWC (wave 8)	1-5	1.65***(0.79)	795	1-5	2.21***(1.01)	795
Δ FWC	-10-2.5	-0.04(0.74)	787	-3.25-2.75	-0.02(0.62)	787
Time Invariant Control Variables						
Relationship duration (log)	-2.48-3.18	2.02(0.89)	748			
Lower education (reference category)	0-1	0.07***	805	0-1	0.14***	805
Intermediate education	0-1	0.38	805	0-1	0.39	805
Upper education	0-1	0.55***	805	0-1	0.47***	805
Nationality	0-1	0.95*	804	0-1	0.97*	804

Time-variant Control Variables

Presence of preschool children in the household (wave 6)	0-1	0.37	804	0-1		
Presence of preschool children in the household (wave 8)	0-1	0.26	804	0-1		
Δ Presence of preschool children in the household	-1-1	-0.11	804	0-1		
Work hours (wave 6)	2-75	28.48***(12.46)	730	1-84	43.76***(9.20)	730
Work hours (wave 8)	1-70	28.97***(11.61)	743	1-85	43.71***(8.87)	743
Δ Work hours	-38-40	0.39*(7.79)	693	-57-55	-0.05*(7.83)	693
Income (log) (wave 6)	4.70-8.70	6.95***(0.67)	600	5.30-9.43	7.72***(0.47)	608
Income (log) (wave 8)	4.32-9.10	7.05***(0.67)	596	5.70-9.39	7.77***(0.49)	598
Δ Income	-2.66-2.68	0.10*(0.41)	515	-2.48-2.71	0.05*(0.28)	522
Couple lives in East Germany (wave 6)	0-1	0.34	805	0-1		
Couple lives in East Germany (wave 8)	0-1	0.33	805	0-1		
Δ Couple lives in East Germany	-1-1	-0.01(0.07)	805	0-1		

Note: These results are based on unimputed data. The indicators of the dependent variable are coded so that higher scores indicate more change (in the positive direction) in life satisfaction and physical health, and more change (in the negative direction) in mental health. We use paired t test for continuous variables and chi-square test for categorical (dummy) variables to test differences in means between wives and husbands. We only use wives' reports for relationship-specific variables, such as relationship duration, presence of preschool child living in the household and whether couple lives in East Germany. * $p<0.05$, ** $p<0.01$, *** $p<0.001$ (two-tailed tests).

Table 2. CHANGE SCORE MODELS FOR LIFE SATISFACTION AMONG MARRIED COUPLES (N=805 couples)

	Model 1 Testing for Actor Effects		Model 2 Testing for Gender Differences in Actor Effects		Model 3 Testing for Partner Effects		Model 4 Testing for Gender Differences in Partner Effects		Model 5 Testing for differences in Actor and Partner Effects	
Individual-level Actor Effects	b	SE	b	SE	b	SE	b	SE	b	SE
Δ WFC	W: -0.11***(0.03) H: -0.11**(0.04)		-0.11***(0.03)		**-0.11***(0.03)**		-0.11***(0.03)		-0.08***(0.02)	
Δ FWC	W: -0.07 (0.04) H: -0.10*(0.05)		-0.08**(0.03)		**-0.08**(0.03)**		-0.08**(0.03)		-0.07***(0.02)	
Individual-level Partner Effects										
Δ WFC					**W: 0.02 (0.04) H: -0.10**(0.03)**		-0.05*(0.03)		-0.08***(0.02)	
Δ FWC					**W: -0.07 (0.05) H: -0.04 (0.04)**		-0.06*(0.03)		-0.07***(0.02)	
Chi-square	16.62**		16.98**		**0.38**		5.57		9.77	
df	4		6		**2**		4		6	
CFI	0.98		0.97		**0.98**		0.98		0.98	
RMSEA	0.04		0.04		**0.02**		0.02		0.03	
R^2 (wives)	0.10		0.10		**0.13**		0.13		0.13	
R^2 (husbands)	0.07		0.07		**0.09**		0.09		0.10	

$*p < .05$, $**p < .01$, $***p < .001$ (two-tailed tests). Models also control for the following variables: marital duration, change in work hours, educational attainment, nationality, change in income, change in whether the couple lives in East or West Germany, and change in having preschool children living in the household. The best-fitting model is bolded above.

Table 3. CHANGE SCORE MODELS FOR MENTAL HEALTH AMONG MARRIED COUPLES (N=805 couples)

	Model 1 Testing for Actor Effects		Model 2 Testing for Gender Differences in Actor Effects		Model 3 Testing for Partner Effects		Model 4 Testing for Gender Differences in Partner Effects		Model 5 Testing for differences in Actor and Partner Effects	
Individual-level Actor Effects	b	SE	b	SE	b	SE	b	SE	b	SE
Δ WFC	W: -0.05** (0.02) H: -0.12***(0.02)		-0.08***(0.01)		-0.05**(0.02) -0.12***(0.02)		**-0.05**(0.02) -0.12***(0.02)**		-0.04***(0.01)	
Δ FWC	W: -0.06**(0.02) H: -0.11***(0.02)		-0.08***(0.02)		-0.07***(0.02) -0.11***(0.02)		**-0.07***(0.02) -0.14***(0.02)**		-0.06***(0.01)	
Individual-level Partner Effects										
Δ WFC					W: 0.00(0.02) H: 0.00(0.02)		**0.00(0.01)**		-0.04***(0.01)	
Δ FWC					W: -0.02(0.02) H: -0.05**(0.02)		**-0.04**(0.02)**		-0.06***(0.01)	
Chi-square	8.38		23.92***		2.18		**5.40**		62.04***	
df	4		6		6		**8**		12	
CFI	0.98		0.98		0.98		**0.98**		0.96	
RMSEA	0.04		0.05		0.02		**0.03**		0.07	
R^2 (wives)	0.06		0.08		0.08		**0.07**		0.06	
R^2 (husbands)	0.11		0.11		0.13		**0.13**		0.07	

$*p < .05$, $**p < .01$, $***p < .001$ (two-tailed tests). Models also control for the following variables: marital duration, change in work hours, educational attainment, nationality, change in income, change in whether the couple lives in East Germany, and change in having preschool children living in the household. The best-fitting model is bolded above.

Table 4. CHANGE SCORE MODELS FOR SELF-REPORTED PHYSICAL HEALTH AMONG MARRIED COUPLES (N=805 couples)

	Model 1 Testing for Actor Effects		**Model 2 Testing for Gender Differences in Actor Effects**		Model 3 Testing for Partner Effects	
Individual-level Actor Effects	b	SE	b	SE	b	SE
Δ WFC	W: -0.21***(0.04)		**-0.19***(0.03)**		-0.19***(0.03)	
	H: -0.16***(0.05)					
Δ FWC	W: -0.03(0.05)		**-0.05(0.04)**		-0.05(0.04)	
	H: -0.07(0.06)					
Individual-level Partner Effects						
Δ WFC					W: -0.06(0.05)	
					H: 0.00(0.04)	
Δ FWC					W: 0.05(0.06)	
					H: -0.07(0.05)	
Chi-square	3.54		**4.26**		0.38	
df	4		**6**		2	
CFI	0.98		**0.98**		0.98	
RMSEA	0.02		**0.03**		0.03	
R^2 (wives)	0.09		**0.09**		0.09	
R^2 (husbands)	0.07		**0.07**		0.07	

*$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed tests). Models also control for the following variables: marital duration, change in work hours, educational attainment, nationality, change in income, change in whether the couples lives in East Germany, and change in having preschool children living in the household. The best-fitting model is bolded above.

Supplementary Tables

Table S1. Correlation Matrix of Outcome Measures

Variables	1	2	3	4	5	6
1. **Life satisfaction (wave 6)**	–					
2. **Mental health (wave 6)**	.44***	–				
3. **Physical health (wave 6)**	.27***	.36***	–			
4. **Life satisfaction (wave 8)**	.52***	.33***	.23***	–		
5. **Mental health (wave 8)**	.31***	.55***	.27***	.43***	–	
6. **Physical health (wave 8)**	.24***	.24***	.42***	.35***	.33***	–

*$p < .05$. **$p < .01$. ***$p < .001$.

Table S2. Summary Table of Empirical Results

Outcome	Actor Effects	Partner Effects	Gender difference in Actor Effects	Gender Differences in Partner Effects	Differences between Actor and Partner Effects
Life Satisfaction	Significant for WFC and FWC	Significant for only WFC	No	Yes (stronger for men)	Yes (actor effects are stronger)
Mental Health	Significant for WFC and FWC	Significant for only FWC	Yes (effects for both WFC and FWC are stronger for men)	No	Yes (actor effects are stronger)
Physical Health	Significant for only WFC	No	No	N/A	N/A